RR

FEBRUARY 27, 1954

Vol. 146 — No. 9

UNIVERSITY OF MICHIGAN

MAR - 4 1954

ENGINEERING LIBRARY

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING •

Telephony

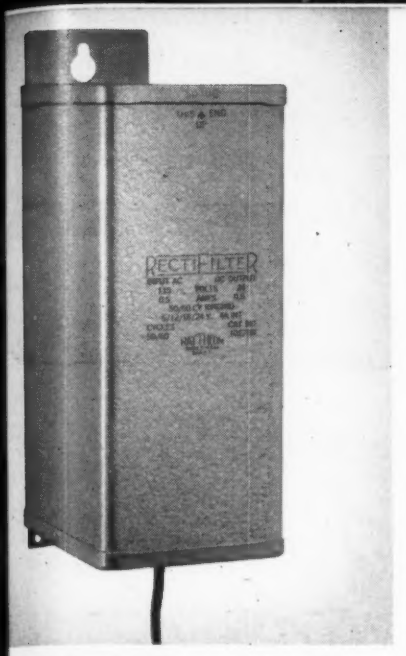
THE JOURNAL OF THE TELEPHONE INDUSTRY

Published every week on Saturday by TELEPHONY PUBLISHING CORPORATION, 608 South Dearborn Street, Chicago 5, Illinois. Subscription $3.50 per year. Entered as second class matter at the Post Office at Chicago, Illinois, under the act of March 3, 1879.

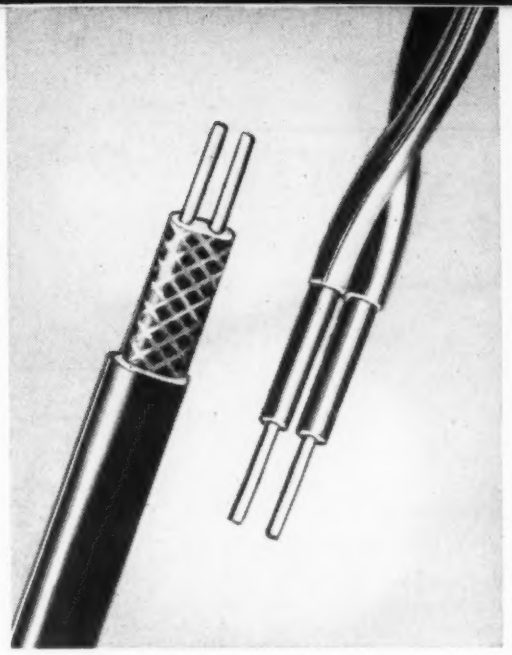
Guaranteed Circulation This Issue

10,021, of Which 9,514 Is Paid

Spotlight on a Star



Service, Reduce Costs and Eliminate Power Problems with RECTIFILTER. Elimi- nstallation of storage batteries . . . oper- e or more P.B.X.'s, or one or more Key ents direct from an A.C. source. Made YTHEON MANUFACTURING CO.

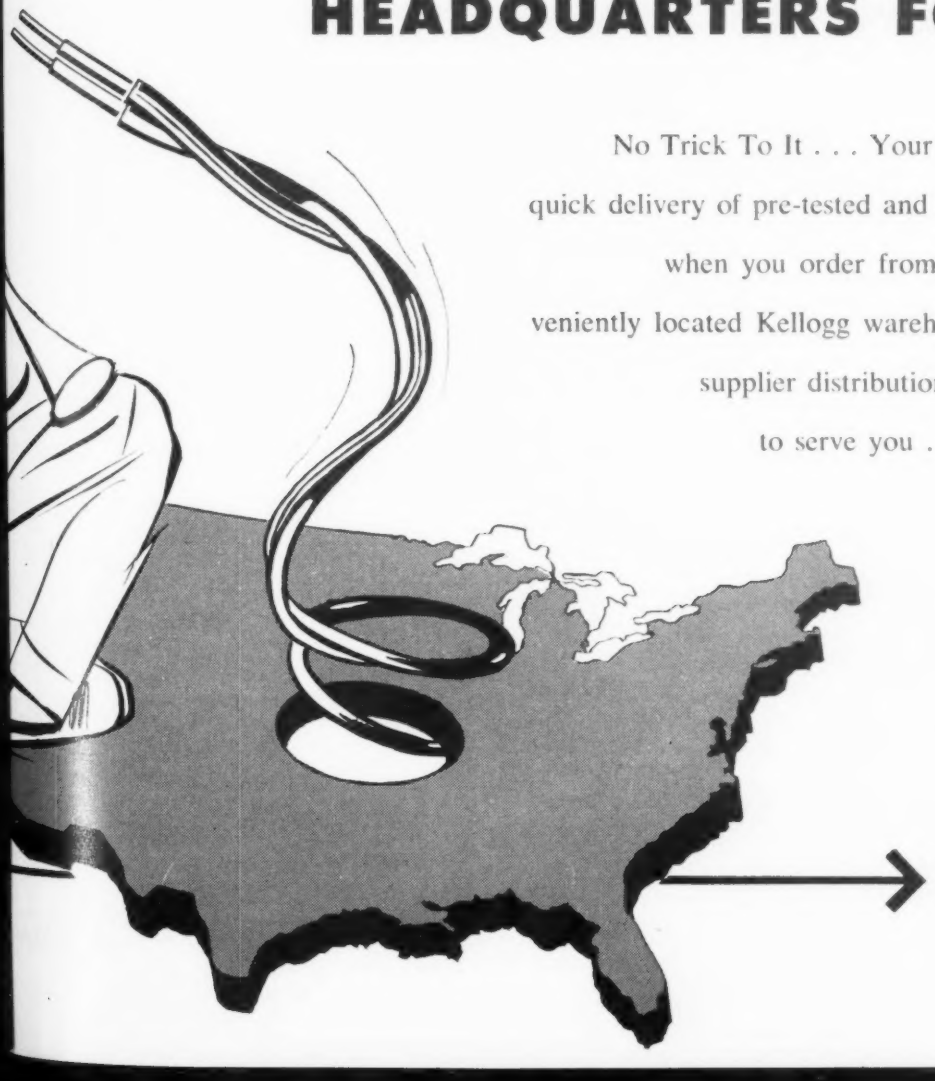


Long Service Life and Low Plant Costs go hand-in-hand with the installation of ENDURPRENE —The Neoprene Drop Wire available in Copperweld and Bronze. Wire combines high tensile strength with flexibility. Made by GENERAL INSULATED WIRE WORKS, INC.

Engineered for Maintenance-free Service — Peatrophone telephone answering instruments are "telephone quality" throughout. Unlike delicate magnetic mechanisms, Peatrophone requires no periodic cleaning or maintenance. Proved by years of service.

KELLOGG

HEADQUARTERS FOR SUPPLIES



No Trick To It . . . Your order gets instant action . . . brings quick delivery of pre-tested and guaranteed Line Supplies when you order from Kellogg. Six well-stocked, conveniently located Kellogg warehouses and more than 100 supplier distribution depots are ready to serve you . . . today.

KELLOGG BRANCH WAREHOUSES AND OFFICES:

6000 W. 51st Street
Chicago 38, Illinois
REliance 5-5445

1515 Turtle Creek Blvd.
Dallas 2, Texas
Prospect 6207

4501 Truman Road
Kansas City 1, Missouri
HUmboldt 7085

1663 Mission Street
San Francisco 3, California
Market 1-6011

410 N. Syndicate Avenue
"Midway Area"
St. Paul, Minnesota
Nestor 5878

1555 West Fourth Street
Mansfield, Ohio
Mansfield 7146-6

KELLOGG BRANCH OFFICES:

406 S. Main Street
Los Angeles 13, California
Vandyke 6759

720 S. Washington Street
Portland 5, Oregon
Atwater 8559

157 Chambers Street
New York 7, New York
BEekman 3-8505

FLASHES AND PLUGS

VELLY GLEAT IMPLOVEMENT NOTED. It was recently reported that Japan's public telephones are going off the honor system.

Patrons will have to deposit a coin before they can talk. Heretofore, they were on their honor to slip a 10-yen coin or bill (about 3 cents) into a box beside public telephones after the call.

Most of the time the system didn't work. But, according to the customers, neither did the telephones.

The boxes were yielding uncomplimentary notes about the service, an occasional I.O.U., a general assortment of debris—and very little money.

The telephone company estimated that 85 per cent of the calls were on the cuff. However, it hastened to add, most of the "dead beat" calls were wrong numbers.

Occasionally, a 100-yen note (about 28 cents) shows up in a box, indicating a long-term welsher has decided to pay up. But the company suspects strongly that most of the promissory notes are never honored.

The coin boxes now are being installed similar to those in use in the United States—with one interesting variation. This is a bow to those pesky wrong numbers.

To guard against a customer losing a coin when the company turns up a wrong number, a gadget gives the patron ten seconds to discover if he has the right party.

The patron slips in a coin and dials his number. If he gets the right number, he pushes a button and his coin drops into the box. If he does not push the button, the telephone goes dead after 10 seconds and the coin is returned.

The new coin boxes have another advantage—there is no slot for notes.

• • •

HANDICAPPED. In New Jersey, a couple's 5-year-old daughter held down the fort for a few hours one afternoon. Being alone, she kept busy making telephone calls.

She called her father at his office at least a dozen times, asking what various telephone numbers were, and finally asked the number of the place where her mother was visiting.

Her father asked if her mother hadn't written it down and left it by the telephone. "Well, if she did, it wouldn't do me any good," the little girl replied. "She knows I can't read."

• • •

CROOKED AND COOL. In Cincinnati, a man recently robbed a cleaner of $8.00.

When the clerk, a 19-year-old girl, protested his dip into the cash register, he handed her a dime and suggested she telephone police.

CIRCULATION

Guaranteed circulation of this issue is 10,021, of which 9,514 or 95 per cent, is paid.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

February 27, 1954

Contents

IN THE NATION'S CAPITAL 17
By Francis X. Welch

TROUBLE CLEARING—WHEN IS A "CROSS" AN "OPEN"?—Part 36 20
By L. N. Martin

PUBLIC UTILITIES—FAIR RATES FOR CUSTOMERS AND INVESTORS 23
By R. P. Briggs

PLANT MAN'S NOTEBOOK 31
By Ray Blain

COURTS AND COMMISSIONS 32

NEWS ON NEW PRODUCTS 42

H. D. FARGO Jr., *President & Advertising Manager*
R. C. RENO, *Vice President & Editor*
H. D. FARGO, *Vice President & Treasurer*
A. J. STULTS, *Secretary & Western Manager*
DAN FARGO, *Managing Editor*
GEORGIA LEARNED, *Associate Editor*
RAY BLAIN, *Technical Editor*
FRANCIS X. WELCH, *Washington Editor*
MAYME WORKMAN, *Traffic Editor*
VIVIAN RYDEN, *Circulation Manager*

Published by

TELEPHONY PUBLISHING CORP.

Vol. 146, No. 9. Published every week on Saturday by TELEPHONY PUBLISHING CORPORATION, 608 South Dearborn St., Chicago (5), Ill. 20 cents per copy (except special issues). Subscription $3.50 per year U. S.; $4.50 Countries in U. S. Spanish Postal Zone; $4.50 Canada; $5.50 Other Countries. Entered as second class matter at the Post Office at Chicago, Ill., under the Act of March 3, 1879.

Telephone WA bash 2-2435

608 S. Dearborn St., Chicago (5), Ill.

U. S. A.

★ ★ ★ IN THE ★ ★ ★ NATION'S CAPITAL

by FRANCIS X. WELCH WASHINGTON EDITOR

Observes continuation of rate-making trend to "fair value" . . . important test cases up for consideration. Bell System initiates sales campaign for long distance service.

THIS STILL YOUNG year of 1954 may prove to be another notable one from the standpoint of development in the trend of rate case precedent away from the doctrine of strict adherence to the original cost rate base for utility rate-making. That doctrine became so strongly rooted under the influence of U. S. Supreme Court decisions in the early forties (notably the Hope Natural Gas case in 1944) that a very preponderant majority of state commissions followed suit.

There is no need to go over the details of that well-known story at this point—except to remind the reader that the list of "original cost" states and those in favor of "present fair value" or some variant thereof, is not a stable one. It is probably true that the number of "original cost" or "net investment" states is still larger than the number of "fair value" states. But with new test cases and appeals to courts going on in several places at the same time, it is possible that by the end of 1954, the balance will actually swing slightly in favor of the "fair value" doctrine. Certainly, the trend of decisions during the post-war years has been in that direction.

It was about this time last year, that three high state courts in close succession, Illinois, Maine, and Maryland directed their respective state commissions to give specific recognition to present value elements in fixing rates for telephone companies. (The Maryland commission had never actually followed a strict cost basis, so the net switch was only two, in the rate base line-up of the states.)

In recent weeks, the North Carolina Supreme Court (in a decision otherwise quite unsatisfactory to the telephone company involved) ordered its commission to recognize current value, in addition to the original cost standard which the commission had been following. The North Carolina statute provides that, in addition to original cost, the commission should consider "the present compared with the original cost of construction." Commenting on this statute the state supreme court said:

"While both original cost and replacement cost are to be considered, neither constitutes a proper rate base."

The court then pointed out that the commission had adopted "book value" or "cost less depreciation" as the proper rate base, and commented: "Clearly this was in conflict with the express terms of the standard prescribed by the legislature. . . . The conclusion is inescapable that by accepting the book value as the rate base it (the commission) of necessity excluded consideration of present cost of replacement and all other factors from effective consideration."

In another telephone company case (Mountain States Telephone & Telegraph Co.) the Colorado Supreme Court upheld its commission's acceptance of current "value of service" elements as compared with the "cost of service" standards which the city of Denver wanted to impose.

The cost vs. value issue was a little foggy as it was discussed in the Colorado court's opinion which sustained (by a 5 to 2 vote) a $5,579,410 statewide rate increase (at 6.35 per cent return) for the company. This had been approved by the commission back in June, 1952; and another $4,011,040 was granted last October, which probably is the result of the court's decision on the earlier boost. Anyway, here is what Judge Bradfield's majority opinion had to say, in upholding a "fair value" of $58,568,550 for the Mountain States company's property in Colorado:

"The rate experts differ on the value of the different cost studies. Both the commission and the trial court heard the disputed issue and resolved it for the value of service concept against the cost of service concept.

"To these facts, the company's rate experts applied their experienced judgments and ultimate opinions.

"We cannot say the factual evidence was insufficient to support the commission's order and the (lower) court's judgment. We shall not disturb the trial court's findings."

Important Tests Coming Up

Perhaps more important than single cases from here and there, added together state by state, is a consideration of just which states are in which list. Without getting snobbish about the matter, it is generally agreed in legal circles that decisions in some of our larger states carry more weight than those from some of the smaller or less populated states. So far, important states such as Pennsylvania, Ohio (always a "reproduction cost" advocate), and Illinois are in the "fair value" list. Three other big shots, New York, Massachusetts, and California, are still definitely classified as following "original cost" or its varieties.

Yet there is ferment going on even in two of these three major strongholds of the original cost concept. True, the New York and Massachusetts commissions are still standing firm on "original cost" or "investment" rate base, and nothing more. But how much longer will they get the backing of their highest courts? We may not have much longer to wait for that answer in Massachusetts. In New York, it will take longer, but a challenging test seems to be in the making there.

The Massachusetts court is now entertaining an appeal of the New England Telephone & Telegraph Co. from a decision of the state commission, denying the company the full measure of rate relief asked. The rate base

REA Approves Four Loans

The Rural Electrification Administration approved four telephone loans during the week of Feb. 8 to 12, the U. S. Department of Agriculture announced on Feb. 15. Details of the loans follow:

Mountain Rural Telephone Cooperative Corp., West Liberty, Ky., $77,000, third loan to this borrower.

The new loan will be used to complete the construction authorized in the first two loans. The REA loans, totaling $820,000, will enable the new cooperative to serve 1,325 subscribers in Morgan, Wolfe and Elliott counties. Dial central offices, as originally planned, will be located at West Liberty, Sandy Hook, Hazel Green, Ezel and Campton.

The completed system will consist of 429 miles of line, instead of 354, as provided in the prior loans. William A. Heagen is president of the Mountain Rural Telephone Cooperative Corp. and Woodrow W. Barber is manager.

* * *

Fillmore County Telephone Cooperative, Houston, Minn., $903,000, second loan to this borrower.

The funds will be used to finance the improvement and extension of rural telephone service in Houston and Winona counties. The first loan to this cooperative, $66,000 approved in September, 1951, is being used in the Ostrander exchange area in Fillmore county. The Ostrander exchange was cut over to dial operation with 130 subscribers in May, 1953.

The cooperative is planning to acquire the following local telephone systems in the expanded territory: Peoples Telephone Co., Houston; Cities & Farmers Telephone Co., Rushford; Peterson Telephone Exchange. The co-op also will acquire for a nominal amount 49 switched lines served from the Houston, Rushford and Peterson central offices. The acquired facilities are now furnishing common battery and magneto service to 1,672 subscribers including 824 switched stations.

Plans of the cooperative call for the rebuilding of 318 miles of line, and the construction of 177 miles of new line. The Houston, Rushford and Peterson central offices will be converted to dial operation, and new dial offices constructed at Bratsberg and Arendahl. These changes will enable the Fillmore County Telephone Cooperative to bring new and improved service to 1,922 subscribers including 250 now without telephones. In addition, the borrower will furnish switching service to 55 rural families. J. H. Lewis is president of the Fillmore County Telephone Cooperative, and George Lewis is manager.

* * *

Amberg Telephone & Telegraph Co., Wausaukee, Wis., $431,000, to finance the improvement and extension of rural telephone service in Marinette County.

This company is presently furnishing dial service to 472 subscribers over 140 miles of line. The loan funds will be used to build 224 miles of new line, rebuild 119 miles of the existing line, and construct a new dial central office building at Amberg. The present dial office facilities at Pembine, Wausaukee, Goodman and Grivitz will be retained in the enlarged system. The REA loan will enable the Amberg company to bring modern service to 759 rural families now without telephones, as well as improved service to the existing subscribers.

The completed system will consist of 346 miles of line. Robert H. Keating is president and manager of the Amberg Telephone & Telegraph Co.

* * *

Merchants & Farmers Telephone Co., Beaverdam, Va., $119,000, second loan to this borrower.

The new loan will finance the construction of 29 miles of line and other facilities to serve 105 subscribers not provided for in the first loan of $274,000 approved in June, 1952.

The two REA loans will enable the company to bring new and improved service to 770 subscribers in Hanover County, including 641 rural families now without service. About 65 miles of existing line will be rebuilt and 173 miles of new line added. Dial central offices, as originally planned, will be at Beaverdam, Montpelier and Gum Tree.

The completed system will consist of 248 miles of line. Richard Eyler is president and manager of the Merchants & Farmers Telephone Co.

issue will probably be a factor. This court's reaction should be interesting because of a somewhat equivocal decision handed down almost five years ago in a gas rate case (Lowell Gas Co. v. Department of Public Utilities 78 PUR NS 506).

In that case the Massachusetts court set aside the commission rate order, based on "prudent investment" as being "plainly confiscatory." But the court failed to state clearly whether it thought the commission should have used a different approach or what form such approach might take. The New England Telephone & Telegraph Co. case might well give the court an opportunity to do just that.

In New York, the commission has just about gotten well under way with the grand-daddy of all state rate cases for the telephone industry or any other utility business. This is the bid of the New York Telephone Co. for a $68,850,000 rate increase. Such thumping big cases naturally move more slowly than smaller ones. But with good breaks and fast handling, there could be a commission order this summer. So, assuming an appeal may be taken, there is an outside chance for a decision from the New York Court of Appeals before the end of the year. But the case is more likely to run over into 1955 before the final word is spoken.

The Real Estate Issue

The New York Court of Appeals has not shown any such signs of weakening in support of its commission's rate theories as the Massachusetts court has. But it has in recent years shown an increasingly independent attitude towards the commission. It has indicated that it would not hesitate to go behind the commission's findings of fact as well as law, if it felt such action was advisable. (Rochester Gas & Electric Co. v. Maltbie 73 PUR NS 43.)

For that reason the particular test which seems to be shaping up in the New York case may be even more provocative than a general challenge of the New York commission's traditional original cost rate base policy. This particular question came to the front last week during hearings before Commissioner Spencer B. Eddy, acting as examiner. It was confined to the question of the value of land—real estate independent of plant structures.

Commissioner Eddy had refused to admit evidence of "fair value" into the record because of what he said was the commission's fixed policy of determining rates only on the basis of original cost less depreciation. At that point, the company's vice president and general counsel asked permission to argue the matter before the full commission.

Commissioner Eddy hesitated. He said he would take the matter up himself with the full commission. And he did. The answer they gave was in favor of Eddy's action in rejecting the counsel's request for special argument. So then the company's counsel, Ralph W. Brown, called the commission's action "arbitrary and contrary to the Constitution" and took an exception. That means he is saving the issue for a court appeal, if the company is dissatisfied with the kind of a rate order the commission finally hands down. There is a good chance that such will be the situation, but it will take time.

Actually, the original cost theory as applied to land is not as traditional as the New York commission ruling might indicate. It hasn't even been consistently followed by the New York commission itself. True, in a number of rate cases, the commission has fixed the rate-making value of land on the basis of original cost just like everything else in the rate base.

But in the Staten Island Edison Corp. case, decided in 1945 (60 PUR NS 385) the commission refused to accept an original cost basis for land values. In that case, the electric utility company tried to get into the rate base the price it had paid for land back in the twenties. This price was too fancy to suit the then chairman of the commission, Milo Maltbie. His opinion pointed out that the company had made no effort to investigate sales of comparable or adjacent property. A "market value" limit was placed on the lands in question.

As a matter of fact, the inclusion of land in the rate base at present fair value or "market value" is fairly common practice even among those state commissions using an "original cost" or net investment standard for other items going into the rate base.

Decisions along this line have been registered by such state "original cost" commissions as California (in conflict with other decisions of the same commission), Florida, Missouri, New Jersey, Oklahoma, North Dakota, and Rhode Island.*

The doctrine of valuing land at its present cost was first laid down by the U. S. Supreme Court in an old 1913 railroad case (Minnesota Rate Cases L30 U.S. 352). It has never been overruled.

Plugging for Long Distance

One of the signs of the changing times through which we are passing is the evidence that the telephone industry has once more turned its attention to active promotion of business. This is not to imply that there ever was a time when the industry did not try to make every dollar it could. But there were times, not so long ago, when ready demand for service was exceeding the immediate supply from the standpoint of plant capacity. And that is still quite a common situation at the local exchange service level.

But the long distance traffic has shown signs of slowing down the pace of its rapid climb during the past decade. And, it is this end of the business which will probably receive the first application of old fashioned salesmanship, such as has not been required since before World War II.

The Bell System announced in New York last week that it was launching a sales drive for long distance service. The mechanics for this program were already set up just before the war, in 1940, when the system had several hundred salesmen trained to interview business prospects for more and different kinds of long distance service. War-time restrictions and demands on materials and manpower put an end to that.

And the Korean outbreak in 1950 threw the reserve plant capacity further out of balance with prospective demand, so that actual sales stimulation was definitely unnecessary.

Now, there are equally definite signs that rapid plant construction is once more catching up and that spontaneous growth of toll traffic has tapered off. Figures for the Bell System now show that the number of daily long distance messages in recent weeks is running about the same as it did a year ago. And when you stop to consider that the figures for a year ago (the early part of 1953) were about 7 per cent over the same period for 1952, it is clear that the toll business has leveled off.

There are various economic reasons for this, already discussed in this department. We are passing through a period of budget consolidation for many families, young and old. Business, in general, is readjusting to new economic conditions following the end of the Korean fighting.

There is no need for too much concern over these symptoms which are bound to occur occasionally. They simply tell us it is time to try well-tested methods of sales promotion which have proven so effective in the past. The Bell System program seems to be aimed mainly at the business subscribers. Regional companies are getting lists of business firms with branch offices in different cities.

Studies are being made of ways and means for stepping up the effective use of long distance service for different types of business. Paid advertising and other publicity will stress the long distance service theme. Sales training courses will go into high gear.

At the local level, there are also indications that both Bell and Independent companies are catching up on the backlog of unfilled orders for new telephone service. Upgrading established service is still a knotty problem in most areas.

But there are also untapped reservoirs of new business still awaiting sales promotion at the local level. The trend from the old "two-family telephone" to two telephones per family is moving slowly and would pick up speed, at the right time, under any sustained sales promotional effort.

Roadside, portable, mobile and certain special services are new business areas in which the surface has only been scratched. All told, it looks like there's plenty of new business in the industry's "freezer" when current service demand drops below the safe point of good business sustenance.

* * *

A Bell telephone official has been made director of the Communications Division of the Business and Defense Services Administration (BDSA) of the U.S. Department of Commerce. He is William A. Vanstory, on leave of absence from his position as vice president of the New Jersey Bell Telephone Co.

He takes over that branch of BDSA which inherited the functions of the old Communications Equipment Division (telephone and telegraph) of the National Production Authority. BDSA now has no active duties with respect to emergency controls of the Korean war period type. It functions as a two-way liaison between communication companies and the Commerce Department on policy matters of mutual government-and-industry interest.

California (1945) California Milk Transport Co. 62 PUR NS 321; Florida (1940) Tampa Electric Co. 37 PUR NS 321; Missouri (1933) St. Louis County Gas Co. 49 PUR NS 55; New Jersey (1925) Middlesex Water Co. PUR 1925 A 1; North Dakota (1936) Northern States Power Co. 15 PUR NS 126; Oklahoma (1926) American Indiana Oil & Gas Co. PUR 1926 A 236; Rhode Island (1939) Narragansett Electric Co. 27 PUR NS 106.

When Is a "Cross" an "Open"?

By L. N. MARTIN

IT WAS A HOT SUMMER day and the road was dusty. The writer, at that time very "new" in the telephone business, drove back and forth over the lead (horse and buggy of course) looking in vain for a cross between two grounded rural lines. He was certain that it was a cross because when the operator rang out on either line the ring came right back in on the other line.

He came to a farm home which had telephones on both of the lines (a not uncommon arrangement at that time) and he entered the house to look for a possible cross in the installation. But again he found nothing.

As he was on his way out he noticed that the ground wire (which served both telephones) was broken off the ground rod and he repaired it. Re-entering the house he called the office to report his progress — or lack of progress—and discovered that the cross was gone.

This type of trouble will puzzle the neophyte. We even have known it to "stump" men with considerable telephone experience, especially when it comes in a more subtle form than the simple case which we have described.

Fig. 1 shows the two telephones, one connected to line 1 and the other to line 2 but with one ground wire common to the two instruments. It may readily be seen that with an open at point "x" the two lines are connected together through the two ringers in series and the lines will ring crossed.

What both the operator and the repairman failed to observe was that the lines did not *talk* crossed. A high impedance ringer is almost an open circuit to voice frequencies, and two ringers in series will completely block the voice currents.

But this class of trouble is not confined to magneto exchanges and grounded lines. Within recent years a large common battery exchange reported that there was a case of trouble that the local force could not locate. It was a cross between the two trunks to a PBX board. We found that this board was of a type in which the trunks ring to ground rather than metallic. Yes, the ground wire was open.

It is not necessary that there be an open to cause this trouble. A high resistance in a wire which is common to two or more circuits will cause the same type of trouble but perhaps in a somewhat lesser degree. Thus a high resistance in the central office ground at an exchange which has many grounded lines will cause an increase in cross-talk and ringing induction but will probably not cause any cross rings.

PART 36. The preceding article in this series appeared in the Dec. 12, 1953, issue, page 24.

To understand this phenomenon it is necessary to learn thoroughly a certain elementary principle of electricity. One form of Ohm's law is IR=V. This means that if a current of I amperes is flowing through a resistance of R ohms there will be a voltage drop of V volts, equal to the product of I times R, across the resistance. This is often called the "IR drop."

In *Fig. 2* the battery is forcing current through the three resistances in series. If a voltmeter is connected across resistance B (as shown), the meter will indicate a voltage. If the current flowing is .5 ampere, this voltage will be .5 ampere × 15 ohms or 7.5 volts. The drop across A will be 5 volts and that across C will be 2.5 volts.

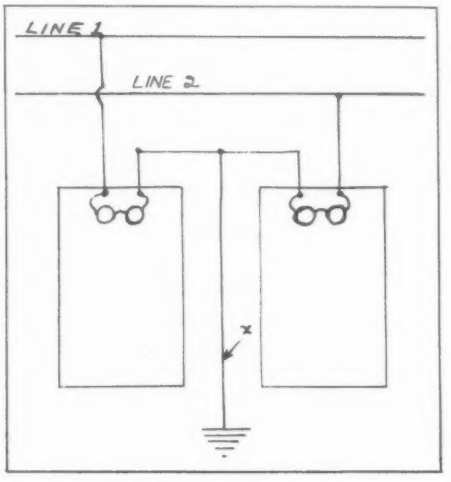


Fig. 1

Now a copper wire, no matter how large or how short, has some resistance. Let us assume that the short piece of wire connecting B and C has a resistance of .01 ohm. If the current is .5 ampere, the voltage across that short piece of wire will be .005 volt and this can be read by the meter if it has a suitable scale.

If the resistance is not changed and the current is increased, the IR drop will increase in proportion to the current. Therefore, even a very low resistance will cause an appreciable IR drop if it is heavily overloaded with current.

Applying this principle to a wire which serves as a common return for two or more circuits, it means that a serious IR drop will develop if:

(1) The wire is open.

(2) The wire has a high resistance joint.

(3) The wire is too long or of too small a gauge to carry the normal current that will flow through it.

(4) The wire is overloaded with a current that it was not designed to carry.

The resulting voltage opposes the normal flow of current and is equivalent to a "counter electromotive force." It can cause many different types of trouble reports one of which is the apparent cross which we have discussed.

The common return wire may be compared to a river with its tributaries. If the main river is completely blocked by a dam, is partially blocked by a land slide, or if heavy rains fill the river beyond its capacity it will back up into the tributaries causing floods and even causing the tributaries to flow backward.

A frequent report in a common battery manual office is "False busy test" or "False busy test at times." It will be found that this trouble is increased at the time the board is carrying a heavy load.

Fig. 3 shows a portion of three cord circuits and a portion of three line circuits. Only those parts of the circuits which are concerned with the busy test are shown in the sketch.

When a line is busy, battery flows from the sleeve of the plug to the sleeve of the jack and to ground through the winding of the cut-off relay. The IR drop of the cut-off relay causes a potential to appear on the sleeve of the jack. When the operator makes a busy test by touching the tip of a plug to the sleeve of a multiple jack associated with that line, battery flows from the tip of the plug to ground through one winding of the repeating coil and the operator hears a click.

However, if the line is not busy, both the sleeve of the line and the tip of the plug are connected to ground and no click should be heard.

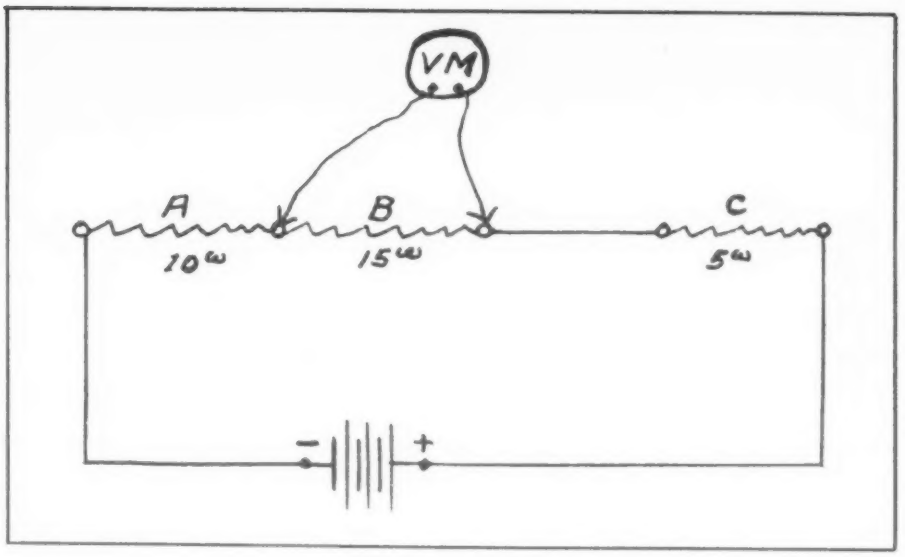


Fig. 2

What then causes a "false busy"?

While both the sleeve of the line and the tip of the plug are connected to ground, these circuits take quite different routes and do not come together until they reach the positive end of the battery. If any connections are up, current is flowing in both of these circuits and both have an IR drop.

Normally, a much higher current is flowing from the jack sleeves than from the plug tips. The IR drop caused by the cut-off relays or by the repeating coils, however, cannot cause a

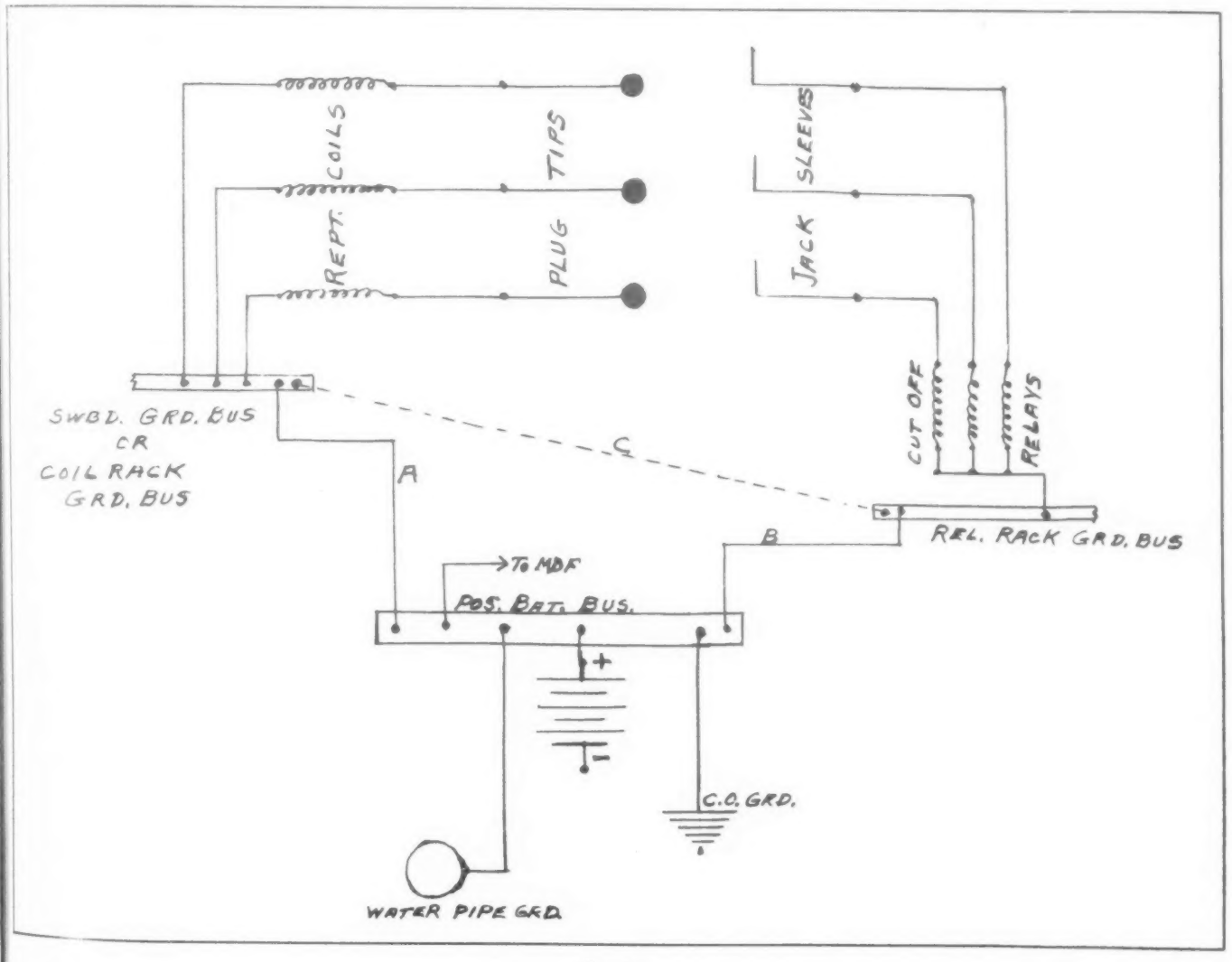


Fig. 3

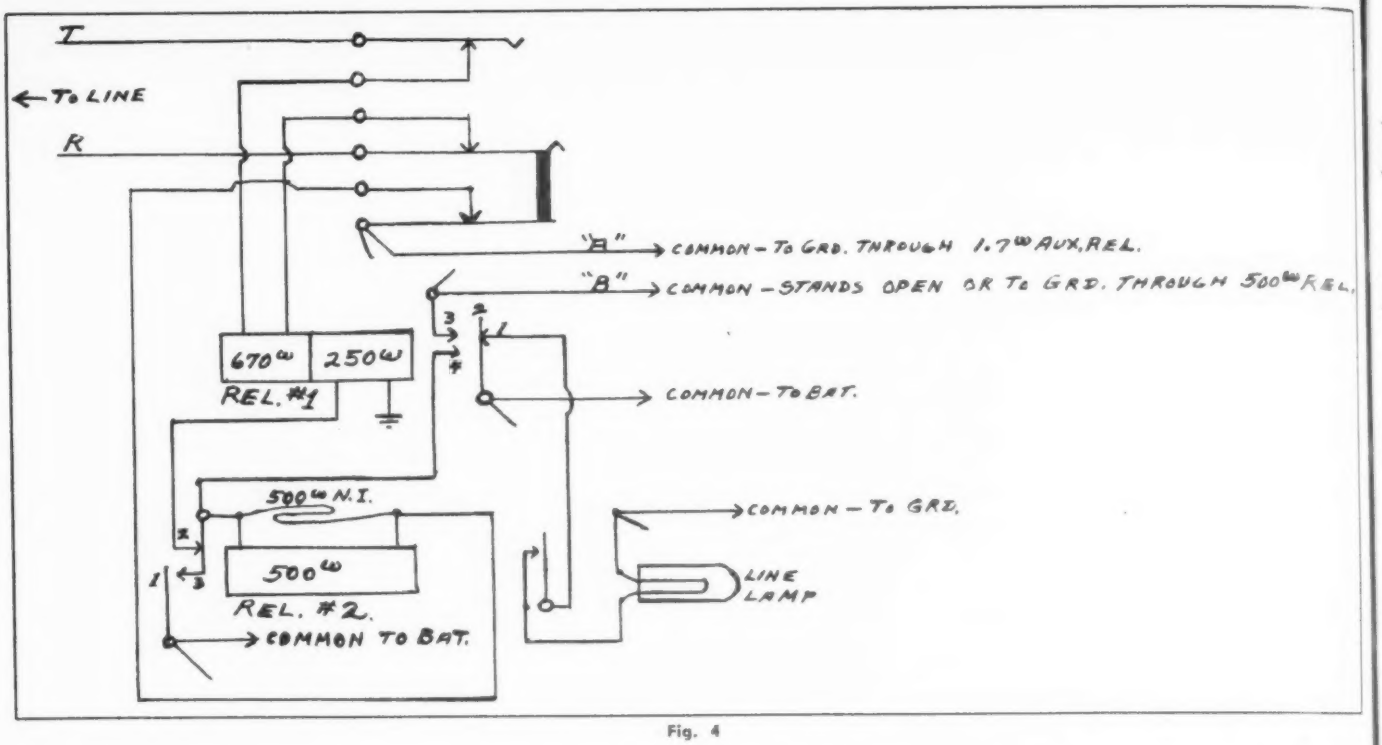


Fig. 4

false busy because these resistances are in individual circuits and cannot affect the other circuits. But the leads which we have designated "A" and "B" are *common* and an IR drop in either of these leads (unless the drops in both leads are equal) will cause a difference in potential between the Relay Rack Ground Bus and the Switchboard or Coil Rack Ground, and this difference may be enough to cause a false busy.

The trouble is usually in wire "B." It may be a high resistance such as that caused by a loose bolt connecting a wire terminal to the bus bar, and can be quickly cleared. However, it may be due to lead "B" being too small to carry the current, especially at peak loads, and the wire will have to be replaced with one of larger gauge. This may happen because a large number of positions have been added to the board without redesigning the power wiring.

If leads "A" and "B" are much longer than the distance between the switchboard and the relay rack, this trouble may be cleared by running a wire—which we indicate by the dashed line "C"—by the shortest route between the two bus bars.

Troubles due to the IR drops and opens in common leads (sometimes called "back up" or "feed back") are numerous and varied. We will give some additional examples:

In a small common battery office with universal cords and magneto line circuits for toll and rural lines, the operator reported: "Rural line #16 crossed with *all other rural and toll lines* on the board." This was a rather startling report and one that should have at once suggested that it was not an actual cross. It was found that when any toll or rural line rang in, the line lamp of line 16 would appear. The local force could not, even after repeated trials, find the trouble and they called for help.

Fig. 4 shows the toll and rural line circuit. (Some features of the circuit that have no bearing on our story are omitted in this sketch). The normal circuit operation is as follows:

When the rural subscriber or distant toll office rings, Relay #1 operates through its 670-ohm winding.

Operation of relay 1 performs three functions:

(1) Battery is connected to common lead "B" to operate the code alarm relay if the latter is in use.

(2) Relay 1 locks through its 250-ohm winding under control of relay 2.

(3) Relay 2 is operated.

Relay 2 when operated performs the following functions:

(1) Locks itself under control of the jack contact.

(2) Releases relay 1.

(3) Closes one open in the line lamp circuit but the line lamp does not light until relay 1 releases.

Relay 1 released performs the following functions:

(1) Lights the line lamp.

(2) Stops the code buzzer if the latter is in use.

A re-ring on the line operates relay 1 but it does not lock as the locking circuit is open at relay 2. A re-ring retires the line lamp and operates the code buzzer during the ringing period.

When the operator plugs into the jack, relay 2 is released which restores the circuit to normal.

Looking over this circuit we find that there are at least five common leads and hence a good chance for common lead trouble. The leads "A" and "B" are especially under suspicion. We soon found that the trouble was due to back pressure from lead "B."

Examining relay 1 of circuit 16 we found that springs 1, 2, 3, and 4 are in one pile-up, and in this particular relay, due to a maladjustment, springs 3 and 4 were making contact with each other when the relay was not operated.

When any other toll or rural line rang in, the #1 relay on that line put battery on common lead "B." On circuit 16, battery coming in from the "B" lead to spring 3, crossed to spring 4 and operated the #2 relay which locked, bringing in the line lamp.

Some time later this same circuit caused another case of trouble. Circuits 19 and 20 were reported "Crossed, line lamp flashes but does not stay in, and a buzzing sound is heard." Again the local force called for help and we found that the strap wire on the jacks which connects to lead "A" was broken between jacks 18 and 19. This left jacks 19 and 20 (at the end of the strip) connected together but not connected to lead "A."

Let us take a look at this case. If

(Please turn to page 39)

PUBLIC UTILITIES

Fair Rates for Customers and Investors

By R. P. BRIGGS*, Executive Vice President, Consumers Power Co., Jackson, Mich.

THERE are many accounting implications in the regulation of public utilities, and leaders . . . should be conscious at all times of the importance of having . . . healthy public utilities which are ready and able to serve the needs of our citizens and industries. In order to serve . . . public utilities must be financially strong. They must be allowed a rate of return that will permit the payment of interest and dividends sufficient to attract investors to their securities.

The utilities have a three-fold responsibility: They must treat labor fairly and pay competitive rates and salaries; they must treat their customers fairly and provide good service at a reasonable price; and they must treat capital fairly, and manage their financial affairs so as to merit investor confidence.

Utilities are subject to regulation by state and federal regulatory bodies, and properly so. For proper regulation, accounting processes must be employed to establish the price of the commodity. Generally speaking, the economic law of supply and demand has only limited application to utilities since competitive services are limited. It is in the establishment of public utility rates that you accountants can see the result of your handiwork in the prices which are actually charged by the regulated utilities for the services rendered the public.

Accounting processes provide the facts and figures for the information of management and investors as in the case of unregulated business. Similarly, information must be compiled and presented to the securities regulating authorities and taxing authorities as in other businesses. Also, the accounting data must be analyzed and interpreted in order that the general public may have an understanding of the operations as is their right in all businesses.

To the above must be added an accounting requirement which increases the responsibility of accountants in the public utility field. You accountants must assist management in supplying accurate, complete and generally uniform data on utility operations which can be submitted to the regulatory commissions and used by them in approving what constitute, in their judgment, proper rate schedules.

Federal Regulation History and Fair Value

The major conflict in the world today between the concept of private property and the ideology of the superstate justifies a review of the history of public utility regulation. Regulation of public utilities represents an inroad by the state on the free right of business to handle its own affairs. The objective of regulation in our competitive society is for the regulatory body to exercise controls which achieve the functions normally gained by competition. Let us examine the background of utility regulation and determine the current status of regulatory bodies.

The earliest common law has long held that there are certain business undertakings which, within the social framework of the times, created special obligations in the public interest. In applying this rule in Munn vs. Illinois, an 1877 case, the court said: "We find that when private property is 'affected with a public interest,' it ceases to be juris privati only. . . ." Property does become clothed with a public interest when used in a manner to make it of public consequence, affecting the community at large. When, therefore, one devotes his property to a use in which the public has an interest, he, in effect, grants to the public an interest in that use, and must submit to be(ing)* controlled by the public for the common good to the extent of the interest he has thus created."[1] It was thus determined that *regulation of an activity affected with a public interest was encompassed within the police power, as an inherent right of a sovereign state.*

The creation of agencies to set up and enforce regulating legislation was challenged as an unconstitutional delegation of legislative power in Reagan vs. Farmers' Loan and Trust Company in 1894. The Supreme Court met this argument by noting that there was in fact no delegation of power, but rather that the *commissions thus created were merely administrative boards which served to carry into effect the legislative will.*[2]

A second important principle was enunciated in the Reagan Case; that of *judicial review.* The court had up to that time dodged the question of the reasonableness of regulation by asserting that the remedy against legislative abuse lay in the polls, not the court. In the Reagan Case the *court* faced the problem squarely, and concluded that *it had both the power and the duty to review all legislative and commission findings as they affected public utilities.*[3]

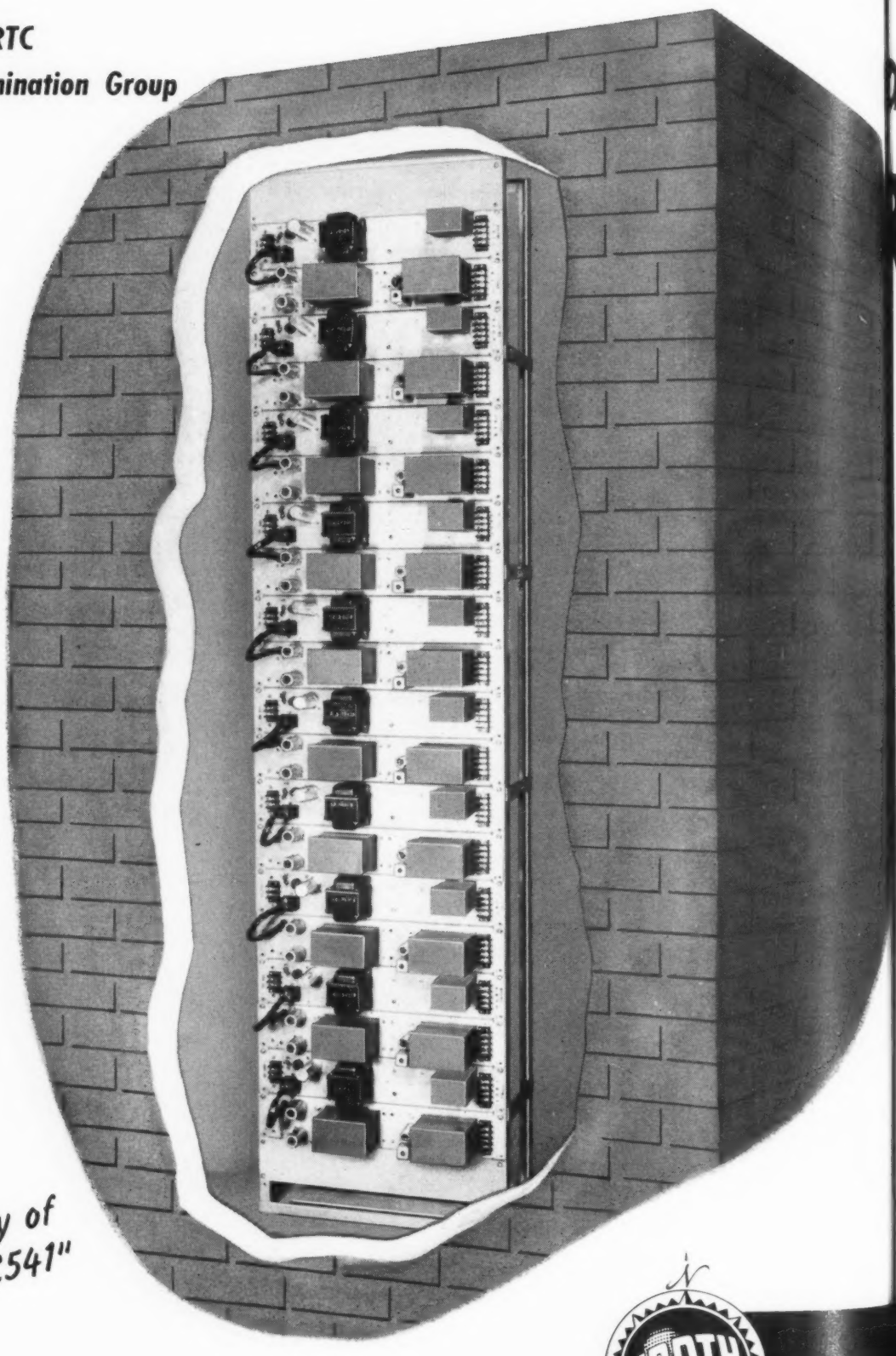
The Supreme Court in 1898, in its search for a measure of reasonableness, formulated the now famous rule of the case of Smyth vs. Ames.[4] The court stated: "We hold, however, that the basis of all calculations as to the reasonableness of rates to be charged—must be the *fair value* of the property being used by it for the convenience of the public. And, in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock,

*This is an address given by Mr. Briggs at the Nov. 6, 1953, Michigan Accounting Conference held in Ann Arbor.

*Inserted for clarity. (Bibliography at end of article.)

Rural Subscrib

This is a NORTH RTC
Central Office Termination Group



Each of these terminations, occupying only seven inches on the central office frame, combines with an outlying termination, of the same compactness, to form one complete RTC channel.*

Terminations fit standard nineteen-inch frames, are easily installed. Power requirement, 117-v 60-cycles. Standby power can be arranged.

Get a copy of "Bulletin C541"

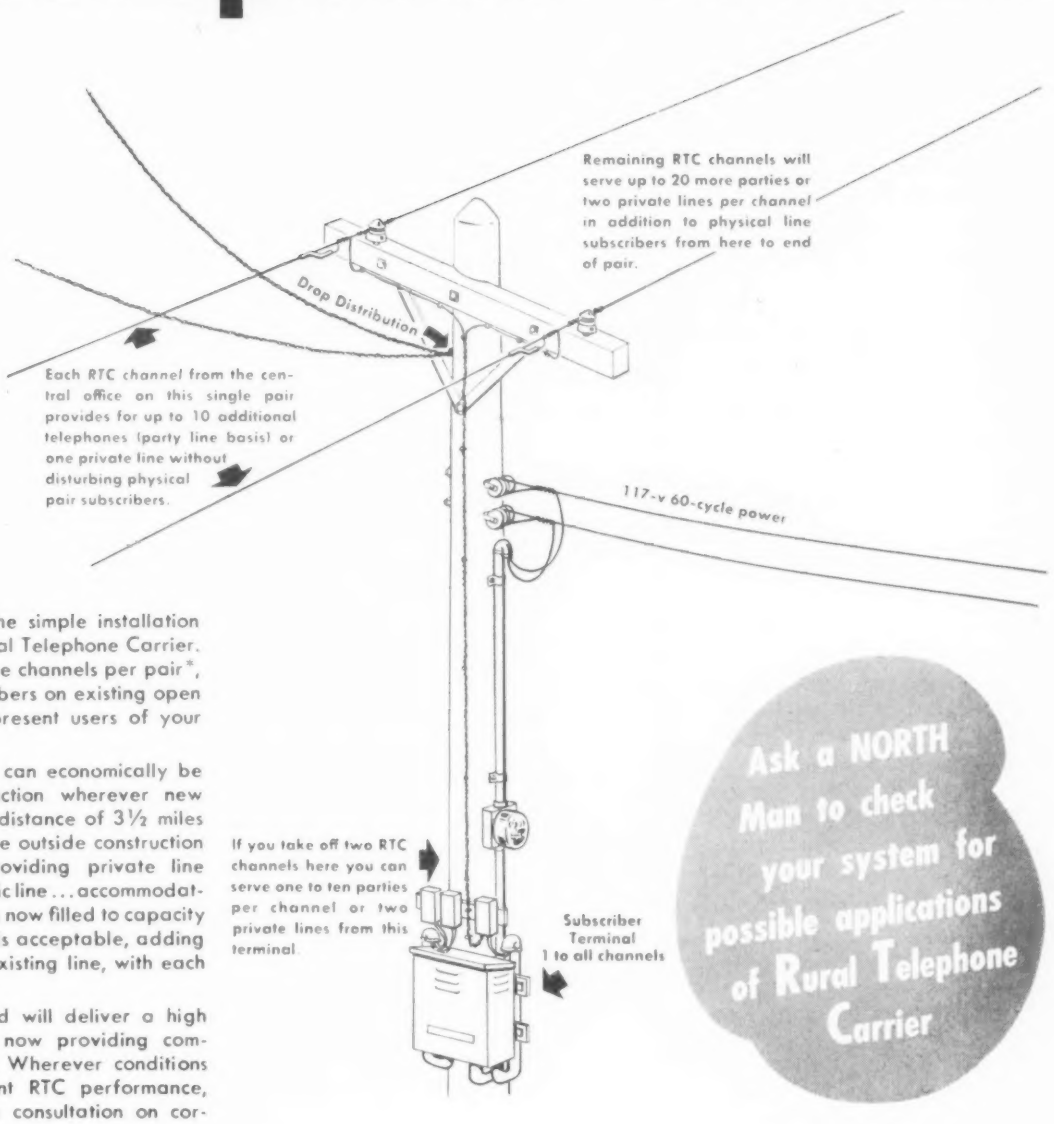
NORTH

er Expansion

at Low Cost with NORTH

Rural Telephone Carrier

This is a NORTH RTC outlying termination


Remaining RTC channels will serve up to 20 more parties or two private lines per channel in addition to physical line subscribers from here to end of pair.
Drop Distribution
Each RTC channel from the central office on this single pair provides for up to 10 additional telephones (party line basis) or one private line without disturbing physical pair subscribers.
117-v 60-cycle power
If you take off two RTC channels here you can serve one to ten parties per channel or two private lines from this terminal.
Subscriber Terminal 1 to all channels

Illustrations on these pages show the simple installation and operation of the new North Rural Telephone Carrier. This is a stackable system, up to three channels per pair*, with which you can add new subscribers on existing open wire pairs without disturbing the present users of your physical circuits.

The cost of RTC is so low that it can economically be substituted for open wire construction wherever new subscribers are available at a line distance of 3½ miles and upward. Thus, without expensive outside construction you can increase revenue by providing private line service along a now crowded metallic line . . . accommodating those waiting for service on loops now filled to capacity . . . or, where full party-line service is acceptable, adding as many as ten subscribers on an existing line, with each low-cost RTC channel applied.*

North RTC is easy to install and will deliver a high standard of service on any line now providing commercial quality voice transmission. Wherever conditions exist which might obstruct efficient RTC performance, North engineers will provide free consultation on corrective measures.

Ask a NORTH Man to check your system for possible applications of Rural Telephone Carrier

THE NORTH ELECTRIC MANUFACTURING COMPANY

Go North for Service and Satisfaction

601 South Market Street, Galion, Ohio, U.S.A.

the present as compared with the original cost of construction, the probable earning capacity of the property—and the sum required to meet operating expenses, are all matters for consideration, and are to be given such weight as may be *just and right* in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property. *What the company is entitled to ask is a fair return upon the value of that which it employs for the public convenience.*"[5]

And so the rule remained for nearly 50 years. In case after case, the Supreme Court re-emphasized the *rule of present fair value.* A significant change in the attitude of courts and commissions toward the question of fair value, original cost, and other various philosophies, was expressed when the Supreme Court decided the case of Federal Power Commission vs. Hope Natural Gas Company in 1944.[6] In that case, the court declined to set aside the order of the Federal Power Commission, which was based upon original cost as contrasted to fair value, and held in substance that the *basis* of value was not controlling so long as the *end result of the order was found to be reasonable.* However, the actual determination was made on the *basis of original cost* and has had such vigorous Federal Power Commission application that many people today have come to believe that it is the universal basis upon which rates should be fixed *This is not true.* The decision in the Hope Case is nothing more than a judicial interpretation of the requirements of the Federal Natural Gas Act. This act does not provide a statutory formula for arriving at a rate base, other than saying: "The commission may investigate and ascertain the actual legitimate cost of the property of every natural gas company, the depreciation therein, and when found necessary for rate-making purposes, *other facts which bear on the determination of such cost or depreciation and the fair value of such property.*"

Michigan Regulation History and Fair Value

Michigan, despite the fact that it is listed by the Federal Power Commission as an "Original Cost State," has not discarded the fair value approach to valuation. In 1945, the commission had before it an electric rate case where the utility's proof on present day fair value consisted of a "Horseback" appraisal. The commission found the proof to be insufficient and speculative, and then proceeded to fix the rates on an original cost rate base less depreciation.[8] In two subsequent cases, the commission prescribed rates based upon the original cost theory.

However, on Jan. 12, 1950, the commission rendered an opinion in the electric rate case of *Consumers Power Co.* in which it stated: "In this proceeding the matter of the proper approach to a rate base has been vigorously challenged to the attention of the commission. We have been urged in most forceful language, both in oral argument and in the brief filed by the company, to pay heed to the statutes and decisions of this state; and, in compliance therewith, to determine and adopt a rate base which is the present fair value of the property of the company used and useful in its business as a public utility.

"Because of apparent confusion upon this subject in this, as well as in other rate cases before this commission, *and because of the expressed belief on the part of even members of the commission staff that this commission is committed to the doctrine of original cost or prudent investment,* we believe that it is high time that this matter should be decided and announced once and for all."[9]

The commission then reviewed those cases which appear to support the original cost doctrine. They pointed out that in the 1948 Michigan Bell Case, the company presented its entire case upon the original cost theory, and in fact it was stipulated that no evidence of any other value would be presented.[10]

They also pointed out that in a second case, the 1949 Detroit Edison Case, although evidence was presented in support of values other than original cost, they sought to demonstrate in their decision they were using the original cost value merely as a test of the *reasonableness of the rates determined* by the order.[11] Then, after a review of the significant changes brought about by the rendering of the decision in the Hope Case, the commission stated: "*From our viewpoint, however, we cannot indulge in a choice between the fundamental philosophy of original cost on the one hand and fair value on the other. We believe that we are directed, not only by the legislature, but by the Supreme Court, in the course which we are to pursue upon this phase of this troublesome question. In other words, both our legislature and our Supreme Court have told us that we are to operate upon the basis of fair value.*

"We are considering this question at a time in the economic history of this country when we are experiencing the most violent inflationary period of our national life. The evidence shows that *the facilities and property of this utility have been constructed and acquired over a period upwards of 35 years and it is incredible that fair value measured in 1949 dollars is not in excess of the original cost of construction or acquisition.*"[12]

The Michigan commission thus made it clear that the Hope Case was an interpretation of a particular federal statute, and that it, the Michigan commission, was committed both by state statute and by court decision to a *fair value rate base.*

The original 1909 legislation covering electric utilities used the following language:

"The commission shall consider and give due weight to all lawful elements proper to be considered to enable it to determine the just and reasonable price *** including *** reasonable return on *actual value* of all property used in the service .***[13]

This was amended in 1921 to substitute for the word "*actual*" the word "*fair*" so that the statute read "fair value."[14] This substitution is significant since by that time the term "fair value" had attained a well-defined meaning under the decisions of the federal and state courts, including the Michigan Supreme Court.

With respect to gas utilities, the Michigan statute neither delineates the elements of value to be considered nor uses the phrase "fair value." However, the basic statute of 1909, Act. No. 300, provides that the rates are required to be "reasonable and just." None of the statutory provisions creating the successive Michigan regulatory commissions defines the basis by which it is to determine a reasonable and just rate or arrive at a valuation for rate making for gas utilities. However, the Michigan Supreme Court has interpreted the commission's powers of

"I hid my lunch money in one of these telephone directories, and now I can't find it."

valuation for railroads, telephone utilities, and gas utilities as requiring consideration of substantially the same elements of value as are required by statute for electric utilities.[15] This latter act provides that the commission shall consider all lawful elements to determine just and reasonable rates including:

Cost.
Reasonable return on fair value.
Depreciation and obsolescence.
Risks of the business.
Value of the service to the consumer.
Connected loads, hours of service, and quantity used.

The conclusion is inescapable—Michigan is a fair value state based upon statutes, court decisions, and the pronouncements of the Michigan commission.

Fair Value

Fair value is a realistic value of the properties committed by the public utility to the public interest. It is a judgment figure to be determined by a prudent commission after a careful weighing of the elements of original cost, reproduction cost and other economic factors.

Through the use of continuing property records, accountants can supply original cost. A determination of reproduction cost requires the services of engineers trained in utility appraisals. Utility properties are not traded on the open market, and, therefore, cannot be valued simply by a glance on the financial pages. As in unregulated business, the cost of reproducing plant is an important factor which should be considered in determining the price of goods or services.

Another element specified is the value of the service to the customer. If the value of the service is low compared to its selling price, no more than a nominal return on any rate base may be feasible. However, where the value of the service is high in relation to the selling price, and the price may be increased with commercial practicality, then it is necessary to consider all of the elements which are relevant in the determination of fair value. Certainly this is true in regard to electric and gas utility companies.

When a company is able, by reason of efficient and economical management and foresight, to supply services equivalent to those supplied by neighbor companies, at equal or lower rates, and at the same time is capable of earning a higher return, it is self-evident that the value of such a utility in relation to the cost of its physical plant, must also be proportionately higher. It is also apparent that as general price levels change, the reflection of such changes in the value of the property will be different for different utilities, depending on the actual earning ability of each under comparable rate levels. Utilities are as different as human beings and there is every reason to expect to find varying results between utilities but each is entitled to a fair return on a fair value.

Price Level Changes and Original Cost

However, utilities as a whole have not succeeded in earning a fair return in the inflationary period of the last dozen years. As of August, 1953, the Consumers Price Index of the Bureau of Labor Statistics had risen by 93.6 per cent over 1939. For the same period gas and electricity component of the index had risen only 1.9 per cent. This means that while the unregulated industry was adjusting its price structures to roll with the punch, the regulated gas and electric industries were not allowed to keep pace with inflation. It is true that larger demands for electric power and increasing skill and efficiency in its production have helped keep cost down. But to expect increasing volume and better generating efficiency to fully offset increased costs is a vain hope. Even the most advanced techniques have not held back the steady attrition of investors' capital through rates which did not realistically reflect the decline in the earning power of the dollar. Economically speaking, the present rates do not preserve the physical plants. This is largely due to the adherence to original cost for rate-making purposes.

The original cost proponent insists that application of an original cost rate base will average out with the cyclical variations of our economy.

Many economists believe that the present inflated dollar is here to stay, and that the most we can hope for is a semistabilization of the dollar near its present level.

It is generally recognized that the rapid rise in wages has resulted in a permanently higher labor cost, and since labor is such a significant factor in commodity cost, we can conclude that we have a permanently higher level of prices.

Dr. Paul W. McCracken has recently testified before the Michigan Public Service Commission that unit labor cost stands at an index of 203 in 1953 compared to 100 in 1940.[16] This unit labor cost is a reflection of two factors:

(1) The 1953 wage index which is 264 based upon 1940 as being 100.

(2) The 1953 output per man-hour index which in 1953 is 130 compared to 100 in 1940.

From these two facts he establishes a unit labor cost of 203 for 1953 compared to 100 for 1940. It is significant to note that a unit labor index for 1953 of 203 is quite comparable to the Consumers Price Index of 190 for 1953 using 1940 as a base. Quoting Dr. McCracken directly, "One point is clear, the rises in the price level and in unit labor costs have been about the same. Both have roughly doubled. The price level has simply been making the normal adjustment to current cost levels."

Dr. McCracken then drew a conclusion with which I heartily agree: "Those who hold the view as I do that the present price level is here to stay do not mean that the consumer price index will never move again. A boom might force the price level higher than at present, but under the downward pressure of a recession, the consumer price index might drop below current levels. My point is that the level around which these short-run fluctuations will occur will be about the level prevailing at the present time."[17] To my mind we have reached a new plateau of price relationships and that plateau as a general price level is permanent, above and below which there will be the usual price fluctuations. And the new, lower valued dollar which emerged from this period of inflation is also permanent.

There has been a reluctance on the part of many regulatory agencies to admit that the value of the dollar has changed for keeps. The dollar has already gone halfway to zero, and we wonder how much farther it will have to decline before they accept it as a fact. The accounting profession is showing increasing interest in the subject, and such leaders as . . . Dr. W. A. Paton have stood up to be counted in the ranks of those who believe that public utilities must have compensation for the expiration of the value of properties utilized in producing their services in terms of the current dollar, adjusted to reflect its depreciated value. Some people think the problem is not serious. They assume that all the util-

Uncle Sam's Cut

"Unfortunately, there are too many Americans who seem to regard money from Washington as a gift, when the fact is that the federal government can neither grant nor give. It exacts a brokerage fee for collecting our earnings from us and another for returning them to us."—RICHAVSOL BOWDITCH, president, Chamber of Commerce of the United States.

Up to speed at "1"

Uniform speed insures uniform impulsing—a feature of Automatic's Type 51 Dial which helps avoid costly toll dialing errors. That's why telephone men are buying Type 51's to be ready for Customer Toll Dialing.

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems

Makers of Telephone, Signaling and Communication Apparatus • Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: AUTOMATIC ELECTRIC SALES CORPORATION
Export Distributors: International Automatic Electric Corporation
1033 West Van Buren Street, Chicago 7, U. S. A.

"—Stays on speed thru "0""

Now and then someone asks us, "How do you give your dial such an exceptionally uniform speed?"

Here's the answer: Our Type 51 Dial uses a high-speed, light-weight governor which gets up to speed almost instantly, without "inertia delay." This governor is powered by a hardened, highly-polished worm shaft which runs smoothly, without wear, against a hardened ball thrust bearing. Friction inserts in the governor balls prevent metal-to-metal contact with the governor cup—avoid uneven wear with consequent erratic operation.

There's more, too! The smooth-working shunt-spring cam, the design of the pawl silencer, and many other features combine to make Type 51 the most accurate, smoothest, quietest dial ever. For 25 years, Automatic Electric quality manufacture has provided long, trouble-free service unequalled by any other dial. The record proves it!

Do as forward-looking telephone men are doing—buy accurate, silent Type 51's. Their uniform speed helps avoid "wrong numbers"—saves bother for subscribers—can do much to improve your public relations.

buy Metropolitan Dials
when you buy new dials

buy Metropolitan Number Plates
for your present dials

Install them as you make service calls—
save unnecessary trips later
when you convert to "2-5" numbering.

ity needs to do is to apply for rate increases and that these will be automatically granted. Such is not the case. Even when rate increases are granted, they come only after a company has bled and has actually sustained an impairment in its earning power. The time consumed in a rate case is so long that the lost earnings constitute a significant sum of money which is irretrievably lost.

Rate of Return

The judicial standard to be applied in order to determine whether a rate of return is adequate is a problem which has vexed the courts and commissions since regulation began. The case of Bluefield Water Works and Improvement Co. vs. West Virginia Public Service Commission squared off on this question of reasonable returns and established that a utility is entitled to rates which will permit it (1) to earn a return equal to the return generally being made by other business attended by corresponding risks and uncertainties, and (2) to earn a return sufficient to assure confidence in its securities.[18]

The court said a utility is entitled to such rates as will permit it to earn a return on its property used for convenience of the public, and such return to be ". . . equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties. . . ." Likewise, this return should be "sufficient to assure confidence in the financial soundness of the utility and should be adequate under efficient and economical management to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties."[19]

Is regulation, as we know it, accomplishing these ends?.

In determining earnings for an electric utility a commission considers the earnings of other utilities of comparable size and similarity of location. In determining earnings for pipelines the commission reviews the earnings of other pipelines, and the same is true of gas distribution companies. I submit that this is basic error, for a commission to relate the earnings of one company to the earnings of other companies, all of which are regulated is a circuitous process. It enables a regulating body to set the beginning and the end, and does not allow a play of normal market forces.

A realistic standard for utility earnings should be the earnings which market forces permit to other businesses having a similar risk factor.

The capital structure of a typical utility company is characterized by a high percentage of senior capital—bonds and preferred stocks, obligations which call for the payment regularly of fixed sums. So while it is true that the cyclical fluctuations of the economy affect utilities to a lesser degree than unregulated business, such fluctuations can leave a heavy mark on utility equity investors. As to the holder of common stock in a utility, the free play of market forces places him in the same risk position as investors in unregulated business. In other words, almost the entire risk attendant to the enterprise falls on the equity holder.

The *second* important holding in the Bluefield Case is that a company's return should be sufficient to assure confidence in the financial soundness of the utility and should be adequate to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties.

We all accept the fact that this country's industrial might is based to a large extent on its utility services. Without modern transportation and communication, today's industries couldn't have the modern technique of mass production. The availability of increased amounts of natural gas has given us new industries and new industrial processes. Likewise, the forward planning of the electric utilities has made available to industry tremendous amounts of power ready to use at the time and place required. Almost without exception the introduction of each labor saving device has been dependent upon the availability of power.

The use of natural gas has increased in the decade 1940-1950 by 138 per cent.[20] The electric utilities more than doubled their output over the same period of time, and in 1952 the industry produced 181 per cent more kilowatt hours than it did in 1940.[21] In 1952, new construction cost the investor-owned electric industry $2,599,000,000.[22]

Since a regulated utility is unable to generate internally sufficient funds to meet expansion requirements, it is obvious that the necessary additional funds must be acquired largely through security sales in the open market. If the utilities are to continue to attract investor capital, they must earn a return sufficient to satisfy the investor's market requirements and compensate him for risking his capital. *Nothing less will do, unless we are willing to give up the free enterprise battle and turn the utility field over to the government and henceforth have socialized utilities, in short give the tent to the camel whose head is now inside the door.* (Italics supplied.)

Allowed Net Income

If a commission establishes a fair, fair rate of return and applies it to a fair, fair value rate base, the product would represent a proper return to the public utility involved. It has been suggested that an original cost value can be combined with an inflated rate of return to produce a proper allowed net income for the utility. Theoretically, the product of x times y can be adjusted by adjusting either x or y, in our case either the value or the rate of return. However, practically, it is just as difficult to adjust either factor, and commissions should forget any idea of accomplishing justice by clinging to original cost with the hope that they can grant a sufficiently high rate of return to result in the utility having proper net income. It just does not happen.

Economic Depreciation

One of the major expenses of a public utility is the measurement of the current expiration in value of the physical plant that has been consumed during the accounting period under review. The recognition of depreciation expense by a public utility on the basis of conventional methods of writing off in a given year a portion of the original cost without correcting for the change in the value of the dollar has been in recent years a gross understatement of the operating expenses of the public utility. One private study indicates that depreciation expense claimed by electric, gas, telephone and telegraph utilities in the year 1951 failed to reflect the true economic loss in value in terms of 1951 dollars by almost one-half billion dollars. The original dollar cost of these plants was some 56 billion dollars.

We write off coal in terms of its current cost, yet that coal is used in a boiler which activates the generator and turbine, and the expiration of value recognized for the boiler, generator and turbine is a fraction of the original cost dollars and not a recovery of the fair measurement of the economic value that has been consumed in the generation of electricity during the current year.

Public utilities must recognize the current value of the property consumed just as they recognize the current cost of labor, material and other expenses. Commissions must recognize the propriety of public utilities recovering in terms of today's values the portion of

(Please turn to page 35)

THE PLANT MAN'S Notebook

by Ray Blain, Technical Editor

PIERRE C. DAVIS, of Jersey City, N. J., has written us about the destruction of poles of both telephone and power companies in Pennsylvania and neighboring states by the pileated woodpecker. This is a protected bird (feared near extinction in the United States). Since this bird is protected by law and cannot be killed, it poses a real problem to the utilities companies. It is reported that some poles require replacement in this area within six months after they are placed in service.

It is claimed that these birds attack only creosoted poles. It has not been determined just what substance or ingredient it is in the creosote that pleases the bird's palate. Numerous devices have been used to combat these birds such as wind-operated pin wheels and noise makers. Sections of old poles have been strapped to the new poles, but to date none of these have proved effective.

This is the first woodpecker complaint that we have received for some time, and we had thought that this difficulty was a thing of the past. However, it appears that this damage is still being encountered in a few sections of the United States. In some cases, it has proved necessary to protect the poles from these birds by wrapping the top half of the pole with plastic screen. While this method is effective, it is admittedly quite expensive. If any of our readers can suggest a better remedy, we shall be pleased to hear from you.

• • •

When the first trans-ocean telephone cable across the North Atlantic is completed, by late summer of 1956, it will be a milestone in the long history of world communications.

The laying of this cable will be completed 98 years after the first temporarily successful telegraph cable between Newfoundland and Iceland went into operation. By contrast, the speed and capacity of the two cables show the magic development in electronics in a century.

The first telegraph cable, in 1858, could carry 15 letters per minute, or perhaps two to three words a minute, according to their length, at a minimum charge of $100 per telegram.

• • •

The Nike, anti-aircraft missile, developed by the Bell Laboratories, and now being massed produced by the Western Electric Co., is, in this writer's opinion, all that it is claimed to be.

We had the good fortune to witness the test firing of two of these missiles about a year ago and their performance in following a drone at high altitudes was no less than fantastic.

• • •

Two years after Alexander Graham Bell invented the telephone in 1876, the nation's capital installed its first telephone exchange and published a one-page telephone directory. This directory listed 187 subscribers, 30 of which were residents and the remainder business and professional firms. Strange as it may seem, six of the firms listed in the original directory are still in business.

• • •

Small, inexpensive self-focusing magnifying glasses that magnify to double size, prove most useful in reading the small print of modern telephone directories, maps, blue prints, etc. These magnifiers are available in one-inch and 1½-inch widths and in lengths from 3 inches to 12 inches. This device is placed directly on the printed page and does not have to be held. This leaves both hands free for making a telephone call.

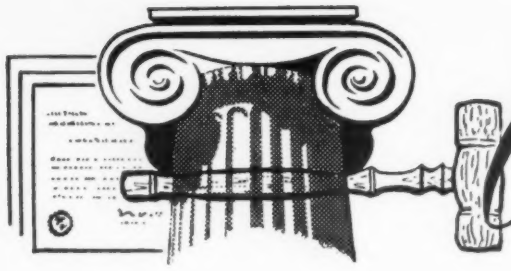
• • •

According to officials of the J. L. Hudson department store in Detroit, "The customer can tell how you look by the sound of your voice" over the telephone. This store placed a mirror over each girl when it remodeled the telephone order department recently. It is claimed that the idea proved sound during the recent Christmas rush.

These telephone order clerks handle as many as 100 transactions apiece each day. No one can blame a girl much if, toward the end of a rough 8-hour day, her voice begins to lose some of its friendliness. By glancing at her own face in the mirror occasionally, the girl can check for wrinkled brows or set lips—which can affect the voice going out over the telephone.

• • •

It has been said that it is a wonderful age we're coming to—with pushbuttons that will push the pushbutton automatically.



Courts and Commissions

Florida Company Gains Raises For Dial Service

Florida Railroad & Public Utilities Commission on Feb. 12 approved rate increases for the Inter-County Telephone & Telegraph Co., Ft. Myers, at its Avon Park, Clewiston and Naples exchanges.

The commission noted in its order that on Feb. 22, 1951, it had authorized rate raises for the company which were to produce "a return of 7 per cent upon the rate base found to be fair and reasonable at that time." Since then the Avon Park, Clewiston and Naples exchanges have been converted to dial operation.

The commission reported, "a great majority of the subscribers in the three different exchanges which will be affected by the proposed increases have signed petitions favoring such increases in the event they are found to be reasonable."

Monthly gross revenue increases under the approved rates were expected to be $158 for Avon Park, $245.25 for Clewiston and $353 for Naples.

Old and new rates are as follows:

	Old	New
Avon Park: Zone 1		
One-party business	$7.25	$8.75
Two-party business	6.50	7.00
Four-party business	5.00	5.50
One-party residence	4.25	4.75
Avon Park: Zone 2		
One-party business	$8.00	$8.50
Two-party business	7.00	7.75
Four-party business	5.75	6.25
One-party residence	4.50	5.50
Clewiston		
One-party business	$7.00	$7.75
Two-party business	6.25	7.00
Four-party business	5.00	5.50
One-party residence	4.25	4.75
Naples		
One-party business	$6.75	$7.75
Two-party business	5.75	7.00
One-party residence	3.75	4.75

V V

Six Michigan Companies Win Rate Increases

The Michigan Public Service Commission has approved rate increases for six companies in approximate amounts as follows:

The Concord Telephone Co., $4,071; the Leelanau Telephone Co., Cedar, $9,432; the Nadeau Township Telephone Co., Carney, $3,870; the Prescott Telephone Co., $1,249; the Port Hope Telephone Co., $16,626, and the Northern Telephone Co., $3,765.

V V

24.9 Million-Dollar Rate Raise Asked By Illinois Bell

A request for a $24,900,000 annual increase in rates of the Illinois Bell Telephone Co. was filed on Feb. 19 with the Illinois Commerce Commission.

If approved, this would be the fourth increase granted the company since 1947. The new rates represent a 7.6 per cent increase on the company's 1953 gross revenues of 327 million dollars.

Last April, Illinois Bell won a $16,518,000 rate raise after 27 months of litigation in which the case went to the Illinois Supreme court after the commission denied any increase.

The company also seeks approval of a revision in service to encourage use of telephones by offering a wider calling area for suburban users in a 30-mile radius of Chicago's Loop.

This plan would apply to practically all suburbs, the company said. There are two types of service under this plan. They are:

(1) Flat rate service allowing unlimited calls toll free in an extended area with calls as lengthy as the customer wishes. Residence subscribers in suburbs bordering Chicago also would be able to make calls to adjacent city areas on a local, toll free basis. Calls beyond the extended area, which will vary with communities, would be charged on a message unit basis.

(2) Message rate service for suburban customers within the 30-mile "metropolitan" area. This service, now offered in Chicago, would be extended for the first time to suburban users. It would offer those with limited calling needs a specified number of message units under a monthly minimum bill. All such calls made locally and to points in the "metropolitan" area would be billed on a unit basis.

Other proposals include a new price schedule for calls from Chicago to many suburbs for about half of the present rates. About two-thirds of these changes will result in decreases due to a new method of measuring distance.

The company said there would be no increase for toll calls throughout the state. All toll calls, however, will have an initial 3-minute talking period.

William V. Kahler, company president, said the increases would net the company $11,250,000 a year after taxes. He said the company spent 91 million dollars in plant expansion last year and that inflationary costs necessitated the increases.

V V

Colorado Supreme Court Backs Mountain States Rate Raise

A 5-to-2 opinion handed down by the Colorado Supreme Court upheld on Feb. 8 a $5,579,410 statewide rate increase granted the Mountain States Telephone & Telegraph Co. by the Colorado Public Utilities Commission in June, 1952 (TELEPHONY, Oct. 10, p. 46).

The high state court affirmed a ruling by Denver District Judge E. C. Day that the commission acted within its jurisdiction in granting the rate increases.

Although not concerned with the most recent rate increase of $4,011,040 that was granted the company last October, the supreme court's ruling was expected to affirm the commission's scope and authority over both rate increases (TELEPHONY, Oct. 31, p. 31).

Justice G. H. Bradfield wrote the majority opinion, with Justices W. M. Alter and E. V. Holland dissenting in a strongly worded separate opinion.

The city and county of Denver brought the case before the high court on a petition that attacked the commission's order fixing the fair value of the company's property at $58,568,550 and allowing it a 6.35 per cent rate of return on its investment.

Denver's petition also claimed that the higher rates forced city subscribers to bear an unfairly large share of the increased rates.

Justice Bradfield, in finding that the commission did not exceed its jurisdiction nor abuse its discretion, examined the procedure through which the commission fixed the value of the company's property in Colorado. Reviewing the evidence of company experts that the "value of service" concept

should be used in rate-making, rather than the "cost of service" theory that the city insisted also should be considered, the justice wrote:

"The rate experts differ on the value of the different cost studies. Both the commission and the trial court heard the disputed issue and resolved it for the value of service concept and against the cost of service concept. To these facts, the company's rate experts applied their experienced judgment and ultimate opinions. We cannot say the factual evidence was insufficient to support the commission's order and the court's judgment. We shall not disturb the trial court's findings."

Justice Holland's dissenting opinion sharply criticized the commission's order and said it relied on the company's unsupported work rather than its own investigations. The testimony discloses, he wrote, "an abject abdication by the commission of its statutory duty and yielding to the self-service pattern presented by the utility.

"If the commission is not provided with the means and facilities to make its own investigations, then it is a nonentity and of no real public benefit." He said the commission granted the rate increase "without findings based on any objective or reviewable facts.

"All we have before us is a discourse by the commission about the elements of two concepts . . . entering into the fixing of a rate structure. In fact, there is no reviewable order before us."

Justice Holland agreed with Denver's complaint that the higher rates be equally distributed "and not, as it appears, where the deficiency of income in one group is made up by an overcharge on other groups, all of which happened here."

He said the evidence showed that Denver "has 44 per cent of the telephones in the entire state and that the increase in Denver rates is approximately 52 per cent of the statewide increase. This discriminatory situation in Denver arises from the commission's acceptance of the utility rate engineer's statements that the more telephones in a city or group, the greater the cost of operating the individual telephone. To a bystander, that sounds as if to say the more business you have, and the more revenue you take in, the less profitable it is to operate."

The justice said the withdrawal of authority over utility companies from home rule cities to the commission was "well-intentioned," but added that the results are "synthetic."

When the commission is called upon to fix statewide rate or tariffs, he said, the commission "should be in a position to do so, and if not, the interests of the public should not be imposed upon by the commission acting solely as a referee between two proposed theories. It should openly and frankly say to the public that 'we are not prepared to make a long and intensive study of the matters involved,' and refrain from doing so until it can effectively operate as the agent of the people in the people's interest."

V V

North Carolina Company Cuts Rate Request

The Hickory Telephone Co., at a hearing before the North Carolina Utilities Commission on Feb. 18, reduced its request for a rate increase from $120,000 to $69,167, which it said is needed to offset rising costs and provide a reasonable rate of return (TELEPHONY, Jan. 23, p. 35).

The Hickory Company which operates at Hickory, Hildebran, Granite Falls and Valdese, serves approximately 14,000 subscribers. It would raise rates at Hickory as follows: $6.50 to $8.00 for one-party business service, from $5.00 to $5.75 for two-party business service, and from $3.75 to $4.00 for five-party business service.

Residence rates would be increased from $3.75 to $5.00 for one-party service, from $2.75 to $3.00 for two-party service, and from $2.00 to $2.25 for five-party service.

V V

Asks Certificate Amendment

The New York Public Service Commission has scheduled a Feb. 26 hearing on the application of the Trumansburg Home Telephone Co., Phelps, for approval to amend its certificate of incorporation and for authority to issue 1,600 shares of common stock and 800 shares of preferred stock.

V V

Ask Rate Relief in Wisconsin

The Wisconsin Public Service Commission has scheduled a Feb. 25 hearing on the application of the Hollandale Telephone Cooperative for authority to increase rates, and a Feb. 26 hearing on the plea of the Grange Hall Farmers Telephone Co. to raise rates.

V V

Apply for Sale, Purchase O.K.

The Missouri Public Service Commission has received the joint application of Earl G. Brookshire to sell and Harry Bradshaw to purchase, the telephone exchange at Mirabile in Caldwell County.

Directory Souvenir Highlights Anniversary Advertising

Last year, Southern New England Telephone Co., New Haven, Conn., set out to celebrate the 75th anniversary of the establishment of the world's first commercial telephone exchange — the New Haven exchange, opened for service on Jan. 28, 1878.

To mark the occasion, and to stimulate interest in the yellow pages of the present telephone directory as an advertising medium and buyers' guide, the company's general advertising manager, Wesley W. Peters, offered a novel souvenir to highlight the anniversary advertising theme.

A reproduction of the original 50-subscriber telephone directory sheet published on Feb. 21, 1878, was given to sales contacts by the directory salesmen, and offered to the general public via match books with coupons on the inside cover. The souvenir pointed out that 14 of the 25 business firms originally listed are in today's directory.

When the anniversary year closed recently, Admanager Peters found that his match books had traveled widely. Distributed to the public only through tobacco vendors within the state, they returned coupon requests from 27 states and Canada, going as far as California in the smoker's pocket before being used. Six months after the completion of match book distribution, the requests were still coming in at the rate of 35 a week.

"Our current total of 4,312 requests has somewhat surprised us," Mr. Peters said, "considering that the offer has more nostalgic than intrinsic value."

V V

N. C. Company Amends Charter

Stockholders of the Carolina Telephone & Telegraph Co. at its annual meeting on Feb. 12 amended the company's charter to increase its authorized capital from 20 to 40 million dollars.

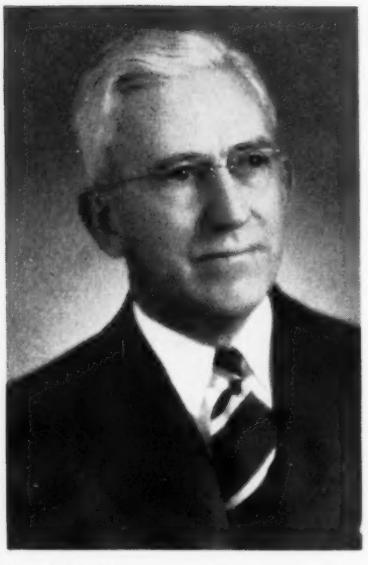
V V

Asks Rate Relief in Kansas

The Satanta Telephone Co. recently asked the Kansas Corporation Commission for authority to increase its rates.

V V

"If you don't plan your cities, people move out and you have decaying cities. The country is wonderful for growing products and recreation, but culture and the things that make for cultural life must be developed in the city. If the exodus from the cities goes too far, we'll have a dying culture and a decreasing civilization."—PAUL L. WIENER, city planner.



Southern Bell Telephone & Telegraph Co. announced recently that G. DEAN GARNER (left), vice president in charge of personnel, retired from active service at the end of January. He will be succeeded by FRANK M. MALONE (center), at present vice president-public relations. HARVEY G. BOOTH, now general commercial manager, has been elected a vice president and will be in charge of public relations, succeeding Mr. Malone. All three are men who rose through the ranks to top executive positions.

BOOK REVIEW

"AUTOMATIC TELEPHONE PRACTICE," by Harry E. Hershey, seventh edition, 416 pages, illustrated. Price $10.50.

The seventh edition of this popular book will be available on Feb. 15. The author states that "Automatic Telephone Practice" is the only publication which records, discusses and explains the achievements of over 50 years in Strowger automatic telephony. The author was actively associated with many of these developments during the change-over from manual to automatic telephony.

The book is "sewn," which permits it to open flat; and the large pages permit circuit diagrams of readable size. The layout is such that the illustration is always in view, and it is never necessary to turn backward or forward to locate the diagram under discussion, the author says. The book is 8½ x 11 inches in size, and is available in cloth binding only.

"Automatic Telephone Practice" is a helpful reference work on Strowger equipment, the author states. The contents of the book are arranged in the nine parts briefly described below:

A—General Principles: A detailed explanation of modern Strowger automatic without reference to circuits. No previous education or experience is required, other than the ability to read and write the English language (32 pages).

B—Historical: Here will be found the historic background upon which the various modern systems are based (44 pages).

C—Circuit Kinks: In this part is presented certain fundamental circuit elements that appear in all telephone or industrial control circuits (16 pages).

D—Circuits: Here is presented a detailed study of typical modern circuits. Each complete circuit is analyzed contact-by-contact (182 pages).

G—Typical Adjustments: Complete standard adjustments are presented covering the Strowger switch, the minor switch, the dial, and telephone-type relays (32 pages).

H—Elementary Principles: Elements of the telephone instrument, the Strowger mechanism, and the relay as used in Strowger telephone practice are discussed in detail (16 pages).

J—Job Engineering: Certain procedural steps involved in the engineering, manufacturing and installation of a typical Strowger office are presented in detail (10 pages).

Relay Design: The design and application of telephone-type relays are discussed in a typically unorthodox fashion (6 pages).

K—Terminations: Here is presented the mechanics of termination, distributing frames, terminal assemblies, etc. (16 pages).

L—Industrial Control: Suggestions are presented covering the use of telephone-type relays and switches in the industrial control field (28 pages).

The book may be purchased through TELEPHONY.

V V

OBITUARIES

RAYMOND COOPER, 70, owner of the Half Rock (Mo.) Telephone Co., died on Feb. 9 in the office of a physician at Trenton, Mo., where he had gone for treatment of a heart ailment.

* * *

LEO PLUMMER, general manager and part owner of the Star Telephone Co., French Lick, Ind., died on Feb. 12.

Mr. Plummer had been with the Star company for the last 36 years. He attended Purdue University and served in the Army in World War I.

He is survived by his widow, Betty; a sister, a brother, a niece and two nephews.

V V

Michigan TV Station Linked To Bell System Network

The Long Lines Department of the American Telephone & Telegraph Co. announced on Feb. 17 that facilities to provide station WNEM-TV, Bay City, Mich., with network television programs were recently made available.

A temporary radio-relay route is now being used to deliver TV signals from the Detroit area direct to the station's transmitter.

With the addition of this, Bay City's first television station, network service is now available to more than 175 cities and 279 stations in the U. S.

V V

Rate Relief in Kansas

The Kansas Corporation Commission recently granted the Town Telephone Co., Bronson, the full $2,118 annual rate increase which the company requested. The Town company serves 165 subscribers.

V V

"Now in order to make good and apply the harsh medicine of prudence and economy in fiscal and monetary affairs, public administrators need a stout heart. They should not be deterred from their mission because clever . . . propagandists cry out to heaven every time an effort is made to bring order out of chaos." — MERRIMAN S. RUKEYSER, columnist.

PUBLIC UTILITIES—FAIR RATES

Continued from page 30

the plant that has expired as a result of today's operations.

Simply expressed, the depreciation of a generator installed in 1939, and paid for in the 100-cent dollars of 1939, must be measured in 1939 dollars and then converted to the equivalent number of dollars in the year the depreciation is being recognized.

Under nonconversion of dollar practices the true cost of plant consumed in operations is not matched by the revenues collected from customers. Each year of operation under present conditions results in the giving to each customer a portion of the plant. Utilities cannot continue to be Santa Clauses.

In accounting for the use of inventories of materials and merchandise you accountants use the last-in-first-out procedure which permits a taxpayer to assign to goods sold, the cost of the goods most recently acquired. This is a recognition of rising costs, and by its unavailability to the industries having large, fixed physical assets, represents an inequity which places the latter at a serious disadvantage.

Most services and goods are bought on a current basis—that is, today's prices in terms of today's dollars. If a utility sells its services at a composite cost of today's costs and yesterday's costs of a higher valued dollar, the customer is simply not paying his way. The actual value of plant consumed should be charged — and that value should be computed through the use of indices similar to our present consumers' price index. This would, in effect, state the actual cost of plant consumption in the current year in terms of current dollars.

There need be no compromise with the essentials of good accounting procedures—only an acceptance of the fact that the dollar is not a stable element. I am not recommending that property accounts be restated in terms of current dollars. I am suggesting that there be a conversion to cost of the consumed capacity to equivalent current dollars as plant service is consumed from year to year. Such a conversion would be precise and not arbitrary; it would accurately measure consumed plant from year to year and charge revenues with the cost of that consumption.

Unfortunately, the problem still is in the discussion stage for most economists and accountants. The governmental agencies continue to oppose any suggested changes in procedures, hence the literal confiscation of private capital continues. This cannot continue.

Trend (?) of Regulation

Over the past few months both the courts and commissions have indicated a growing awareness of the impact of inflation on utility operations. In a recent case, the Illinois Supreme Court rejected a commission finding that the fair value of a telephone company's property was original cost plus 6 per cent, and directed the commission to take into consideration: "Current economic conditions, price levels and reproduction costs. . . ."[23]

The Florida Railroad & Public Utilities Commission has taken recognition of the fact that rising costs, coupled with the lag of regulation, may reduce utility income to the level of confiscation.[24]

Most heartening of all is the observation by the National Association of Railroad & Utilities Commissions (NARUC) that the ranks of the "value" states, as distinguished from original cost states have increased, until about one-third or more of the state commissions give some recognition to current cost factors in finding a rate base.[25]

These signs are encouraging, but only an optimist would as yet label it a trend. It does indicate, however, that the processes of regulations are recognizing the economic guideposts of these dynamic times.

Government in Business

Through rural electric cooperatives and many hydro projects, our government is a powerful competitor in the electric power business. The Tennessee Valley Authority has grown to a point where there is no longer any pretense of flood control and navigation improvement as a test for the propriety of a proposed expansion. TVA is openly in the business of making and selling power, and has an investment approaching $1,600,000,000. This is open competition from a government agency which borrows money at an interest rate which is *less* than half what the federal government *actually pays;* does not have costs of floating equity capital; makes a payment in lieu of state and local taxes at less than half the rate paid by the average investor-owned company; and pays no income taxes.

With this background of subsidy, and through the simple expedient of not reflecting on its books the interest payments of some 25 million dollars annually, paid by the Treasury on its behalf, TVA represents a real competitive force. And through the application of the preference clause of the Flood Control Act of 1944, the impetus is provided whereby the rural electric cooperatives can expand their systems in direct competition with investor-owned taxpaying utilities.

If you happen to be an individual who thinks there is nothing wrong with the Tennessee Valley Authority in an economy that has won its spurs as a free enterprise system, let me ask you what you would think if you were a pickle canner, and let's assume sweet pickles are being canned, and the government decided to have a TVA project to process pickles. Of course, the invested capital would be provided by the government. The authority would pay no federal taxes, only token local taxes, receive free advertising, free legal services, be charged no interest, and might even occasionally receive a grant from the government to pay some of its operating costs. Would you as a pickle processor feel that private enterprise was being dealt with fairly when a socialized competitor supported by public taxes competed with you in the market place?

Originally, the generation of public power allegedly was incidental to the objectives of TVA. Today, a firm supply of power is necessary since private power companies have been driven out of the area and the government has a complete power monopoly. This benefit for the Tennessee Valley inhabitants comes from the pockets of the people of all the states. What this can lead to is shown by Governor Dewey's recent insistence that New York should have a power authority to siphon back to New York some of the hundreds of millions of dollars its people pay to the federal treasury. This is socialism on the prowl.

Future for Free Enterprise

A strong and stable America can continue only if the principles of free enterprise can be applied in the future as they have been in the past. It has been traditional of our economy that private capital is quick to develop a feasible new process or technique which will do the job better or more cheaply. Recently the application of nuclear power to the production of electricity has opened a whole new field which should be studied and probed by all the tools available to industry. The fact is, however, that the Atomic Energy Act of 1946 vests complete control over all atomic development in the federal government. The utilities have taken a

bold stand on the issue of nuclear power in the belief that this new and potent force ultimately can be economically harnessed for peaceful uses by the active and free participation of America's business and industry.

I have heard it said that some projects are too big for private capital. Anyone believing this has failed to appreciate how private capital has expanded its means. At Joppa, Ill., five business-managed electric companies have undertaken a 100 million dollar electric generating plant to serve a government uranium plant across the river at Paducah, Ky. A 400 million dollar project is under way near Portsmouth, O., under the ownership of 15 other utility companies. The electric industry is willing and able to undertake any sound electric supply project.

The effect of this new supply of energy on our economy is not too clear. We do know that it will not make electric power "dirt cheap."

J. H. Campbell, vice president of Consumers Power Co., has made the following pertinent observations about the application of atomic power to the generation of electricity:

"* * * two things should be borne in mind. Present methods of producing power are steadily being improved in efficiency, thus accentuating the competitive problem confronting atomic power plant designers.

"Furthermore, the successful completion of an atomic plant which can compete economically with methods now used will not mean a drastic reduction in the cost of power in areas where fuels now being used sell at normal prices.

"This is so because the principal cost of electric power is the cost of its delivery to the customer—not the cost of the fuel used to make the steam which turns the generators.

"We anticipate great possibilities in the atomic power field, but feel its limitations should be faced realistically."

The utility industry looks forward to the generation of electricity by atomic energy as another progressive link in the ever-growing chain of progress.

Summary

The imminence of atomic power serves to emphasize the need for a "fair and enlightened judgment" on the part of each regulatory body in its considerations of allowable rates to be charged by utilities. Great sums of capital will be required in the years ahead to finance either conventional or nuclear generating plants. To that end, the public utilities will compete with all other business for the investor's dollars. If they are to be successful, then regulation should be modern regulation. 1953 earnings should be based on 1953 requirements which urgently need a recognition of fair value and the realization that the expiring plant purchased with "dear" dollars, must be replaced with "cheap" dollars.

It is equally important that the federal government withdraw from its role as an active competitor in the production and transmission of power, or in any business. Taxpaying private enterprises should be required to compete with government projects subsidized with tax money. Government is the referee and should not run with the ball too. Taxes collected across the nation should not be funnelled into a small area, for the benefit of only a few. If you see Uncle Sam handing someone a bouquet, don't think of him as a benevolent gentleman. The chances are good that he picked some of the flowers in *your* garden.

Accountants have had a major assignment in the regulation of public utilities in the past. Your role today is and in the future will be even greater. In fulfilling your utility engagements you will be helping assure our country in the years to come of healthy utilities with healthy, flexing utility muscles capable of continuing to show the world that the free enterprise way is the best way.

BIBLIOGRAPHY

1. Munn v. Illinois, 94 U. S. 113 (1877).
2. Reagan v. Farmers' Loan and Trust Co., 154 U.S. 362, 393 (1894).
3. Ibid., p. 399.
4. Smyth v. Ames, 169 U. S. 466.
5. Ibid., p. 546.
6. F.P.C. v. Hope Natural Gas Co., 320 U. S. 591 (1944).
7. 15 U.S.C.A. Sec 717e (a).
8. Ré Detroit Edison Co., M.P.S.C. 1945 Orders and Opinions, p. 127; City of Detroit v. Detroit Edison Co., 59 P.U.R. (N.S.) 1, 11.
9. Ré Consumers Power Co., 82 P.U.R. (N.S.) 97, 104.
10. Ibid., p. 107.
11. Ibid., p. 107.
12. Ibid., pp. 107, 108.
13. Act 106, P.A. 1909, Sec 7.
14. Act 274, P.A. 1921, Sec 7; M.S.A. Sec. 22.157.
15. Detroit R. Co., v. Railroad Com'n, 171 Mich 335 (1912); Michigan Public Utilities Com'n v. Michigan State Telephone Co., 228 Mich 659 (1924); P.U.R. 1925C, 158; Ré City of South Haven, P.U.R. 1923A, 711; Ré Michigan Consolidated Gas Co., 1940 M.P.U.C. Orders and Opinions, 646, 660.
16. Ré Michigan Bell Telephone Co., M.P.S.C. Docket No. T-252, Transcript p. 618 (July 23, 1953).
17. Ibid., p. 621.
18. Bluefield Water Works and Im-

Constructio
an
WITH THE DOU
STROMBERG-CARLS
LEADI

with Copperweld
LINE WIRE

Many years of severe weather experience have convinced leading telephone companies that the permanent high strength of Copperweld Line Wire really pays off in better performance and lower costs. Along with the necessary ruggedness to resist heavy ice and wind loads, Copperweld permits safe, economical, long-span construction—offers complete protection against corrosion—and has better voice and high frequency transmission characteristics than any other high-strength conductor.

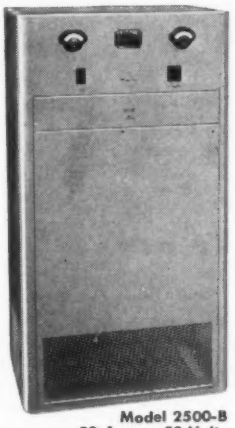
If you are interested in securing all these superior advantages at lower overall cost—make sure you use Copperweld Line Wire

...aterials
...Supplies
...JARANTEE OF
...D AMERICA'S
...ANUFACTURERS

here's how the 3-phase

flotrol automatic battery charger

reduces operating costs!



Model 2500-B
50 Amps., 50 Volts

GREATER POWER SAVINGS—The unusually high efficiency of this 3-phase self-contained unit (50% at 10% of rated load and 75% at 40% rated load), results in continuous power savings to the FLOTROL user, sufficient to pay for the unit in less than its anticipated life.

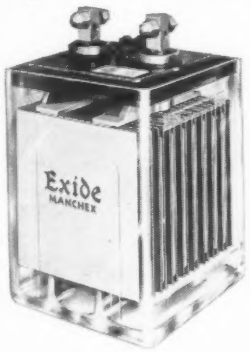
REDUCED MAINTENANCE COSTS—The FLOTROL contains no moving parts; once installed, requires no further attention.

MAXIMUM BATTERY LIFE—By floating the battery at constant voltage, battery activity is reduced to a minimum.

DC voltage delivered is regulated within 1%. Complete overload protection is as automatic as charging itself.

WRITE for Bulletin 161—completely describing the FLOTROL system for 3-phase operation.

Exide-Manchex
telephone batteries



assure positive operation

For Central Office and Private Branch Exchange Equipment

...s is proven daily in exchanges of every size ... for over 60 years Exide Batteries have been ...ving the Telephone Industry . . . the Man...ester positive plate with its exclusive button ...e construction provides exceptionally long ... . . . latest developments on molded glass ...s permit compact space saving installation ... heavy terminal posts with copper inserts ...vide extra conductivity for sustained volt...e at high discharge rates . . . microporous ...ber along with slotted plastic separators, ...e impervious to chemical and electrical re...tions . . . plastic spacers assure plate align...nt . . . for assured dependability, long life ...d low-cost maintenance use Exide Manchex.

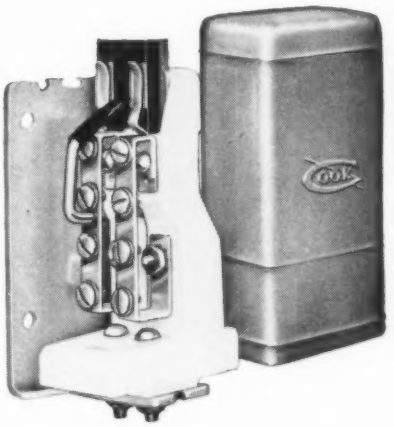
...e Electric Storage Battery Co.
Philadelphia, Pa.

...88 . . . Dependable Batteries for 66 Years . . . 1954

the new

cook party line junction

(PROTECTED)



The illustration above shows unit with cover removed.

Mfd. by Cook Electric Co.

Here's an ideal unit for terminating and protecting the cable pair drop, the cable pair, and distributing four party line drops.

Circuit consists of ground stud, a pair of true gap lightning arresters, cable drop studs and heavy busses each equipped with four screw type terminals. Easy to install. All drop wires are doubly protected when used in conjunction with Cook substation protectors.

Distributed by

STROMBERG-CARLSON

ROCHESTER • CHICAGO • ATLANTA • KANSAS CITY • SAN FRANCISCO • TORONTO

High Fidelity Radios and Radio-Phonographs

Office Intercom Equipment

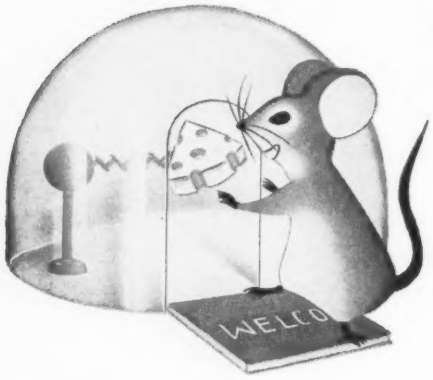
Electronic Carillons for Churches and Public Buildings

Sound and Public Address Systems

"Panoramic Vision" Television Receivers

AND MANY OTHER ELECTRONIC PRODUCTS FOR OUR ARMED FORCES

We've Built a Better Mousetrap



FLOTROL

THE BATTERY CHARGER WITH NO MOVING PARTS *

Model 1200B

And telephone men are beating a path to our door.

They've found that FLOTROL does what they always hoped their battery charger really would do; IT HOLDS CONSTANT FLOATING VOLTAGE on the battery.

They've found, too, what it can mean to have a charger which doesn't require attention, one they can depend on to do its job, year in and year out, without costly and annoying routine maintenance or adjustment.

For complete information, write for Bulletin 160, which describes the single-phase models, from 1/2 ampere to 24 amperes, and Bulletin 161 which covers three-phase models from 25 amperes to 200 amperes.

* *No good on mice.*

LORAIN PRODUCTS CORPORATION
1122 F STREET LORAIN, OHIO

FLOTROL PARTNERS IN DEPENDABILITY SUB-CYCLE

provement Co., v. W. Va. P.S.C. 262 U.S. 679 (1923).

19. Ibid., 692, 693.
20. *Gas Age*, Feb. 12, 1953.
21. *Electrical World*, Jan. 26, 1953, p. 159, quoting Federal Power Commission as source.
22. Edison Electric Institute "Statistical Bulletin," 1952, p. 51.
23. Illinois Bell Telephone Co. v. Commission, 111 N.E. (2nd) 329 (1953).
24. Ré Florida Power Corporation, 99 P.U.R. (N.S.) 129.
25. Report of Committee on Valuation, N.A.R. U.C., September, 1953, p. 5.

V V

Hawaiian Co.'s Name Change Marked by Native Ceremonies

In a brief but colorful island ceremony on Feb. 1, Hawaii's Mutual Telephone Co. changed its name to Hawaiian Telephone Co.

At 8 a.m., employes of the company, dressed in vivid island costumes, assembled in front of the Alaska St. entrance of the company's main building in Honolulu; members of Hui-Mele Nani, the company's chorus, flanked both sides of the entrance. The ceremony opened with an invocation in Hawaiian by David K. "Daddy" Bray, well-known local exponent and authority on Hawaiiana.

Following the prayer, Governor Samuel Wilder King presented the territory change-of-name certificate to J. Ballard Atherton, the company's president. After a brief acceptance speech by Mr. Atherton, Mr. Bray offered a Hawaiian blessing as two women employes drew back curtains of orchid leis, unveiling the company's new bronze nameplates. During his chant, Mr. Bray sprinkled the nameplates and threshold of the building with *wai olena*, a consecrated water used on ceremonial occasions.

The official party then followed Mr. Bray into the main lobby, where two male employes of Hawaiian descent placed illuminated copper *kahilis* into position. (These are replicas of symbolic Hawaiian royal standards, which consist of staffs topped by a cylindrical sheaf of feathers. They will be a permanent feature of the building's decor.) The ceremony concluded with the singing of "Hawaii Ponoi" the Hawaiian national anthem, by the company's Hui Mele Nani chorus.

V V

NBFU Says January Fire Losses Increase 12.8% Over Last Year

The National Board of Fire Underwriters (NBFU) on Feb. 19 reported that estimated fire losses in the United States during January this year amounted to $86,493,000.

According to Lewis A. Vincent, NBFU's general manager, this $86,493,000 loss represents an increase of 12.8 per cent over losses of $76,659,000 reported for January, 1953, and an increase of 3.7 per cent over losses of $83,440,000 for last December, 1953. These estimated insured losses include an allowance for uninsured and unreported losses.

V V

It has been said that no one is too old to learn, but many people keep putting it off.

J. BALLARD ATHERTON, president, addresses onlookers at the program marking the change of name of Hawaii's telephone company from "Mutual" to "Hawaiian" Telephone Co. Directly behind Mr. Atherton is DAVID K. BRAY, authority on Hawaiiana, dressed in the garb of the priesthood. Standing in the doorway is Hawaii's Governor SAMUEL WILDER KING, who presented the territory's change-of-name certificate to Mr. Atherton. Curtains of orchid leis cover the company's new bronze nameplates, unveiled later in the colorful ceremony. Employes of Hawaiian descent hold copper *kahilis*, replicas of symbolic Hawaiian royal standards.

WHEN IS A "CROSS" AN "OPEN"?

Concluded from page 22

only one circuit were involved, that is, if lead "A" were open on circuit 20 only and this circuit rang in, relay 1 would operate and lock, but relay 2 would not operate and relay 1 would remain locked indefinitely. The line lamp would not light. However, with two circuits involved we have a further complication.

If line 20 rings in, its #1 relay will operate and close a circuit from battery on spring 2 to spring 4 and hence to spring 3 of relay 2. Here the circuit divides.

One path is from spring 2 through the 250-ohm winding of relay 1 to ground locking relay 1. The other is through the winding of relay 2 to the jack contact, across the short strap connecting jacks 20 and 19, through the winding of relay 2 in circuit 19 and the 250-ohm winding of relay 1 in circuit 19 to ground operating both of these relays as well as relay 2 of circuit 20, all three in series.

Relays 1 of both circuits are now released, then relays 2 are released. What happens next depends on the timing of the various relays as determined by their adjustment. Under one condition (as in this case) an oscillating circuit will be set up.

It required quite a bit of study to diagnose this case from tests and observations at the relays. However, another man might have found the broken strap on inspection.

We thus see that a case of trouble reported as a cross may turn out to be an open or a high resistance in a common return circuit or may be due to the overloading of such a circuit. This should be suspected when a cross is reported that appears to be unlikely or physically impossible; as for example, if the cross appears in one direction only, as 1 crossed with 2 but 2 not crossed with 1; or if the cross appears when signaling but not when talking or vice versa.

We believe that if a central office maintenance man will study thoroughly the types of trouble which this article discusses, he will be able to locate quickly and clear many peculiar and puzzling cases of trouble. Also, he will prevent many of these cases.

V V

It has been said that the modern idea of "roughing it" is driving a car with a standard gear shift.

NEW! Ramset FASTENING SYSTEM

SUPER-POWER JOBMASTER

takes over where others leave off

NEW FEATURES for
Performance
Economy
Utility

Shortest, lightest, heavy-duty tool

Greatest driving power

New series of power-sealed charges balanced to the tool

Circle-Set Shield, adjustable for 12 positions of handle

Faster, easier operation

All the family characteristics of RAMSET JOBMASTER and PLUS-POWER JOBMASTER are built into the new SUPER-POWER JOBMASTER for heavy-duty fastening into steel up to 1" thick or into hardest concrete. Ask your dealer to demonstrate the many new features which make SUPER-POWER JOBMASTER the outstanding powder-actuated tool for speed, ease, utility and economy, and to show you how it takes over where all others leave off. Or, write us for details.

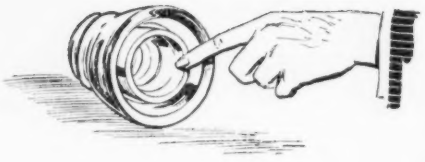
Ramset Fasteners Inc.
12145 BEREA ROAD • CLEVELAND 11, OHIO

Ramset Division, Olin Industries, Inc.

FIRST IN POWDER ACTUATED FASTENING

AN Olin PRODUCT

PERFECT FIT

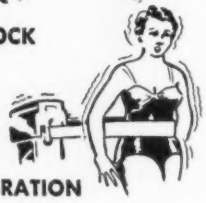


With Armstrong's Glass Insulators there's no rocking or wobbling on the pins. Their uniform, accurate thread contour means these insulators fit pins perfectly, stay on tight. For details, call your supplier or write Armstrong Cork Company, Glass and Closure Division, 295 Fifth Avenue, New York 16, New York.

ARMSTRONG'S GLASS INSULATORS
for communications . . . for power

SENSITIVE RELAYS *that* R-E-S-I-S-T

SHOCK



VIBRATION

TEMPERATURE

NO BIGGER THAN A BOOK OF MATCHES

Here are miniature sensitive relays—single or double-pole types—which fullfill the most rigid requirements of space, shock, temperature and vibration in both commercial and military applications. The Series 100—105—106 relays are hermetically sealed and have a long life expectancy. *Write for Bulletin* **SR—4**

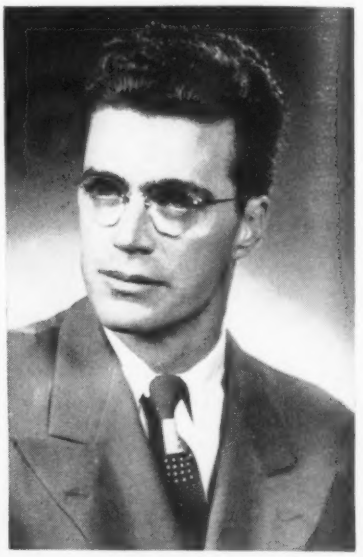
Engineering representatives in principal cities.

Wheelock RELAYS
SIGNAL ENGINEERING & MFG. CO.
LONG BRANCH, NEW JERSEY

Sidney Crook of Stromberg Transferred to Chicago

Sidney Crook, telephone sales engineer of the Stromberg-Carlson Co., has been transferred to the Chicago branch according to T. C. Thompson, sales manager.

Mr. Crook joined the company in 1952, serving in the installation department, and was transferred to sales engineering in 1953. Prior to joining



SIDNEY CROOK

the company Mr. Crook was associated with several other telephone companies beginning in 1945. Born in Denver, Colo., Mr. Crook's education included a pre-engineering course.

V V

American Creosote Converts Cylinder for Penta Treatment

Because of a need to supply a ready market for clean penta-treated products, the American Creosote Works has converted a pressure treating cylinder at Winnfield, La., to pentachlorophenol, S. C. Braselman, president, has announced from the company's main office in New Orleans, La..

Mr. Braselman said the new cylinder went into operation early in the year. Winnfield is one of four treating plants of the American Creosote Works and has been operating since 1927.

American Creosote Works has been in the penta-treating business in Jackson, Tenn., for the past 18 months, serving primarily utilities and the railroads.

V V

"There are too many administrative decisions which have to do with the mode of life and habits of the individual citizen which are made so far away from his habitat that he not only has lost interest, but his sense of public responsibility."—SHERMAN ADAMS, assistant to the President.

BUILD LONGER LIFE — GREATER DEPENDABILITY
into your lines with
AMCRECO POLES

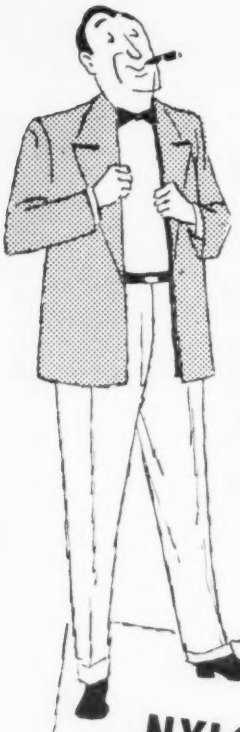
To give you the best telephone pole possible, Amcreco poles are pressure treated in creosote. Not just dipped, not just soaked — but creosoted under pressure by the Amcreco treatment methods. This treatment forces protective creosote right into the cells of the wood — preserves the natural strength of the wood — assures many years of dependable service.

Poles pressure treated with creosote by Amcreco methods have high resistance to fungi, to insects, and have greater strength throughout the life of the pole. This means fewer replacements and lower maintenance costs with less service trouble. For your next job, contact one of our nearby sales offices.

POLES
PLANK
CROSSARMS
CONDUIT

Amcreco
Lowry Process
Creosoted
Products

AMERICAN CREOSOTING COMPANY
INCORPORATED
COLONIAL CREOSOTING COMPANY INCORPORATED
AMCRECO LOWRY PROCESS CREOSOTED WOOD
GEORGIA CREOSOTING COMPANY INCORPORATED
GENERAL SALES OFFICE—CHICAGO, ILLINOIS
18 FIELD SALES OFFICES TO SERVE YOU



which type jacket do you prefer ?

NYLON ?
NEOPRENE ?
MERCERIZED COTTON ?

COMMERCIAL makes *all three* . . . REGULAR type Cords with either Mercerized Cotton or Nylon Jackets . . . RETRACTABLE and REGULAR type Cords with Neoprene Jackets . . . for all makes and types of Telephone instruments.

AND DID YOU KNOW that Commercial Switchboard Cords are now available with or without plugs?

Write for Catalog and Samples

COMMERCIAL CORD & SUPPLY CO. INC.
26 E. Main St. • Clifton Springs, N. Y.
Phone: CLIFTON SPRINGS 189

news on new PRODUCTS

BOTTLED GAS FIRE POTS—The Met Sales & Mfg. Co. recently introduced two new lead melting, bottled gas fire pots identified as Model C and Model P, now equipped with Underwriters Laboratory approved control valves.

Model C is a low-pressure, high heat furnace designed to operate with a pressure regulator at five to 45 lbs. pressure. The instant lighting, easily

controlled heat, operating under all weather conditions, qualify the fire pot for cable-splicing and other out-door operations, the company states.

Model P is a plumber's furnace, designed to use a high pressure blast burner. Its heat is controlled up to 2350°F thereby reducing the danger of burning the lead.

Both models have a wide base with a low center of gravity to prevent tipping. The self-mixing burners require no pumping, priming or pre-heating. Blast flame or multi-spread flame burner is optional. No. 11 model weighs 25 pounds, 21 inches high and 11 inches in diameter. Available in 5, 11 and 20 pound capacities. Request NP 238.

• • •

CHAIN SAW—The new chain saw manufactured by The Luther Corp. is a lightweight portable unit driven by a Luther motor. The gravity feed carburetor makes it possible to use it in any cutting position—up, down or sideways.

Other features of the Luther chain saw include a waterproof ignition system that permits use of the unit under all types of weather conditions: Driving rain, snow, smog or fog.

Specifications include: Engine, one-cylinder, two-cycle air-cooled 1⅞-inch bore by 1⅝-inch stroke; operating speed, 4500 rpm; bearings, ball and needle throughout; starter, new positive automatic rewind with exclusive

nylon cord; fuel tank capacity, one quart (1½ hours normal sawing); drive, Gilmer belt; clutch, automatic centrifugal; chain oiler, built-in posi-

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
Chicago 5, Ill.

Please have the manufacturer send me without obligation the literature indicated by the following numbers:

NP238 ____ ; NP239 ____ ; NP240 ____ ; NP241 ____ ; NP242 ____ ;
NP243 ____ ; NP244 ____ ; NP245 ____ ; NP246 ____ ; NP247 ____ ;
NP248 ____ ; NP249 ____ ; NP250 ____ ; NP251 ____ .

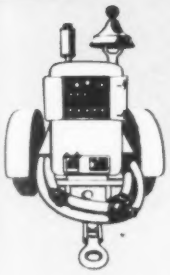
Name ..... Title .....

Company .....

Town and State .....

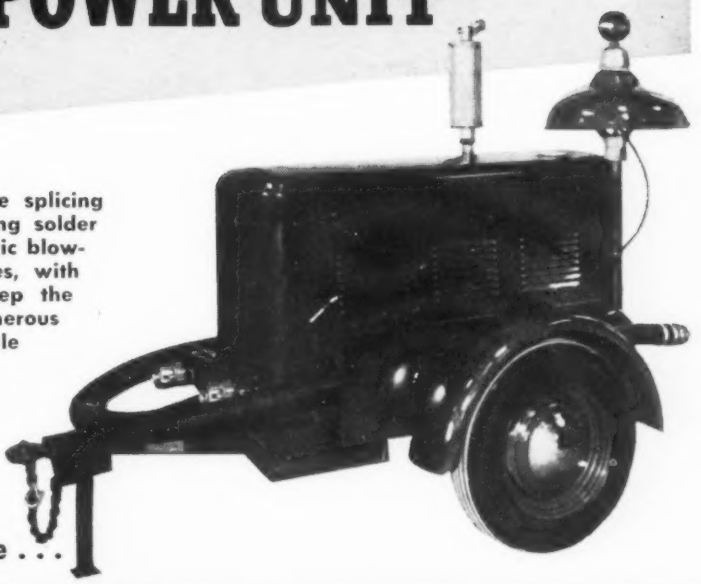
2/27/54

S&G MOBILE POWER UNIT



The S & G mobile power units are totally enclosed—can be operated without removing the side panels.

For use by telephone cable splicing crews, for lighting, operating solder pots, solder irons and electric blowers for ventilating manholes, with a diaphragm pump to keep the manholes dry. There are numerous other features of the mobile power units, all of them especially designed for company jobs and problems. The units are light, easy to handle, and very quiet in operation.



for further information write . . .

S&G MANUFACTURING CORP.

P. O. Box 1309 • New Orleans 10, La.

RARE GAS RELAY KILLS INTERFERENCE!

OVER 1/4 MILLION IN USE!

Party Line Transmission and Ringing Improved with Vincent Rare Gas Relay RTC-2

HERE ARE THE FEATURES:

1. Ends all objectionable noise.
2. Prohibits false ringing.
3. Easily installed in all types of equipment.
4. Lightning protection.
5. Non-mechanical, no maintenance.
6. May be used with harmonic or coded bells.
7. May be used on magneto or common battery lines.

$2.97 LIST PRICE

THE THEORY OF OPERATION —

Since the resistance of the relay is infinity below 60 volts, (The relay's normal breakdown voltage) the line remains normally free from paths to ground. Ringing voltages of over 60 volts ionizes the rare inert gases, and therefore is transmitted without difficulty.

FREE: **TECHNICAL BULLETIN, WRITE DEPT. 48-A.**

Brach

SINCE 1906

BRACH MANUFACTURING CORPORATION

Div. of General Bronze Corp.

200 CENTRAL AVENUE, NEWARK 3, NEW JERSEY

HUmboldt 2-1500

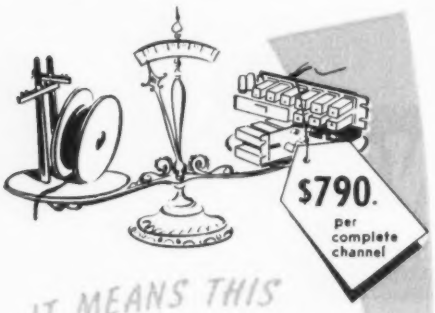
"PROVING-IN" under 5 miles with type 'S'

FM Carrier

Subscriber and Trunk

WHAT DOES IT MEAN?

It means that the cost of one complete (installed) channel of McElroy Type 'S' Carrier is less than the true cost of five additional wire miles, based on national averages!



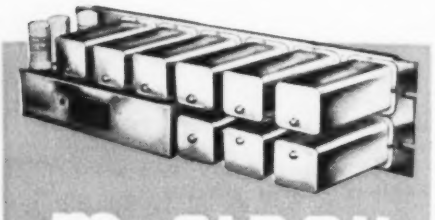
IT MEANS THIS TO YOU!

If the construction costs of providing an additional wire circuit (subscriber or trunk) on your system exceed $790.00, you can "prove-in" with Type 'S' carrier.

AND THAT'S NOT ALL...

Carrier circuits have a very definite maintenance advantage over the years vs. wire circuits.

We urge you to review your expansion requirements and invite your "prove-in" calculations and inquiries.



McELROY

MANUFACTURING CORP.

Littleton, Massachusetts, U.S.A.

tive plunger type—capacity ½ pint; chain Oregon chipper and router—.058 gauge; cutter bar, 20-inch standard (14-inch, 16-inch, 26-inch and 30-inch also available). Request NP 239.

• • •

INDUSTRIAL HEATER—A complete heating unit with the heat potential of an average furnace and the dimensions of an ordinary orange crate is the new Model E-600 heater, a product of Perfection Stove Co.

The E-600 produces 60,000 BTU's of fresh air output per hour, yet weighs only 114 pounds, including the fuel

for five hours service at high speed, and can easily be carried by two men, the company states.

This heater is completely self-contained, including a centrifugal pressure-type dual blower which separates the ventilating air from combustion air while using only one motor. It can be operated from 110 volts ac or 24 volts dc, and contains its own power rectifier.

The blower can deliver maximum heat through long duct or hose runs without the aid of additional fans or blowers.

The E-600 burns fuel oil or gasoline in any weather—even in temperatures as low as 70 degrees below zero. A special non-clog fuel-metering jet maintains steady flow regardless of temperature changes or viscosity of fuel.

Positive ignition is assured by a glow plug that vaporizes as well as ignites the fuel. A single operating switch provides convenient manual high-low operation. Request NP 240.

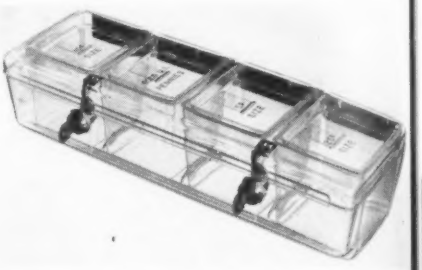
• • •

PLASTIC COIN BOXES—A tamper-proof method of accumulating coins or slugs may be found in the transparent plastic box manufactured by Gladwin Plastics, Inc.

The unit consists of four individual, removable coin boxes enclosed in a master container.

The master container has a hinged lid and is equipped with two locks that allow for 102 key changes. The lid is indented to plug the tops of the inside coin boxes so that their contents cannot spill out. Slug or coin sizes may be stamped on the lid and slots may also be cut.

The contents of the boxes are clearly visible and may be removed only in the



presence of another employe who has the key to the other lock.

The complete four box unit measures 14 5/16 inches long by 5 1/16 inches wide and 3 5/16 inches high. Individual boxes also available fitted to take the standard lock top. Request NP 241.

• • •

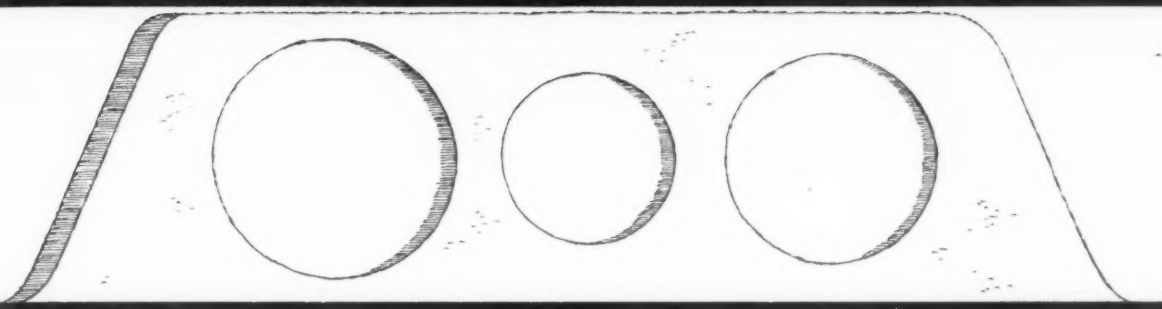
FEATHERWEIGHT SAFETY SPECTACLES—New shatterproof, multi-purpose safety spectacles, called "Visor-Tuc Eye Savers," give almost 100 per cent protection from eye injuries and weigh hardly more than an ounce. They have been announced by Watchemoket Optical Co.

Over-eyes protection from glare and flying particles is provided by a built-in visor, an extension of the frame, shaped to fit snugly against the wearer's

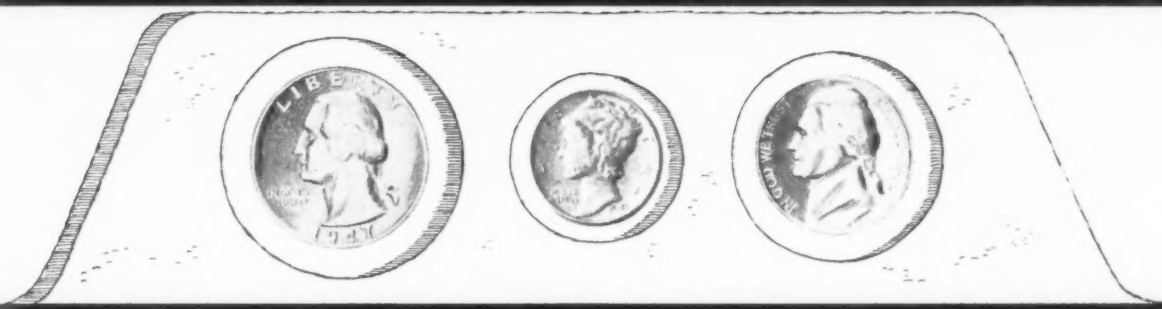
forehead. Injury from side or bottom is prevented by "semi-cup" lenses, so called because of lens-flanges extending from the lenses toward the cheek.

"Visor-Tucs" are made in a single frame style that fits all workers. This feature is made possible by a "Universal" nosepiece which rests lightly on the nose and by "Retrax Temples" which can be adjusted instantly by each wearer to suit the shape of his face—long or short, wide or narrow.

PLUG THE HOLES



OF LOST EARNINGS



WITH METAL BOOTHS

YOUR OPPORTUNITIES ARE AS BIG AS ALL OUTDOORS

Locations for metal outdoor booths loom up at every turn . . . gas stations . . . motels . . . drive-in movies . . . airports . . . bus and railroad terminals . . . roadside snack stands. Ideal money-maker is the trim, attractive Sherron model 17S, Type 7, shown here. It is engineered of zinc coated, cold rolled steel and wireglass to look lastingly new, with a minimum of maintenance. Fireproof and termite-proof, it is impervious to rot and decay. And thanks to the luminous "Astra-Dome" roof and "Lite-Omatic" photo-electric switch, it is an oasis of light in the dark of night . . . Write for all the facts.

Your existing Sherron 17S, Type 1 booths can be equipped with the "Astra-Dome" & "Lite-Omatic" switch. Write for prices and instructions.

SEE COMPLETE LINE IN TELEPHONY AND TELEPHONE ENG. & MGT. DIRECTORIES

SHERRON METALLIC CORPORATION

1201 FLUSHING AVENUE, BROOKLYN 37, N. Y.

KLEIN

Quality you can count on—FOR SAFETY... FOR SERVICE

Yes, safety and service are the two big reasons why Kleins are the choice of the man on the pole. Look for the familiar Klein trade-mark on pliers and climbers, safety straps and belts, lag wrenches and grips. It has been a trade-mark of quality "Since 1857."

ASK YOUR SUPPLIER

Foreign Distributor: International Standard Electric Corp., New York

Write for your free copy of the Klein Pocket Tool Guide today!

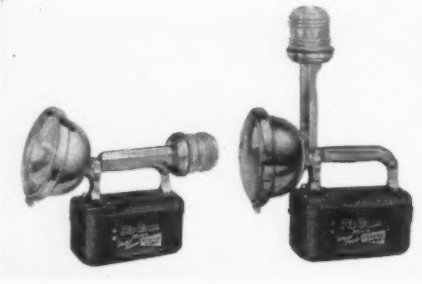
"Since 1857"

Mathias KLEIN & Sons
Established 1857 — Chicago, Ill., U.S.A.
3200 BELMONT AVE., CHICAGO 18, ILL.

Shatterproof, methacrylate lenses can be replaced in an instant—easily removed and inserted by the wearer, yet securely locked in place. Lenses are optically correct to prevent eye strain and permanent injury resulting from distortion of the image. They are available in clear and three shades of green: light, medium and dark. Request NP 242.

• • •

PORTABLE HAND LAMP—A new combination portable electric hand lamp and flashing red beacon has been



added to the Big Beam line of hand lamps, electric flares, and automatic emergency lights produced by U-C Lite Mfg. Co.

The new Beacon Lamp, available in both sealed beam (No. 164) and standard bulb type (No. 104) models, features the Big Beam exclusive two-position flushing beacon. When the beacon arm is folded down, it fits snugly over the handle. In this position, the flashing bulb covered with a red Fresnel lens of molded plastic serves as a tail-light. When carried in this manner, the beacon lamp not only lights the way ahead but also flashes a warning to vehicles approaching from the rear.

The red flasher becomes a tower beacon when the arm is raised to the upright position. The light is then much higher than any other part of the lamp, assuring unobstructed visibility from all directions when placed on the ground or on top of an automobile.

Because the lamp and beacon operate either independently or together, the beacon lamp can be used as a hand lamp only, as an emergency or signal light only, or as a combination of these two.

The lamp and beacon are powered by one standard six-volt lantern battery housed in a sturdy steel case finished in red baked enamel. Battery replacement can be made in a very few seconds because there are no wires to connect. Lamp-to-battery contact is pressure type. Request NP 243.

• • •

CELLOPHANE WRAPPING OF UNITS FOR THE UNIT SYSTEM OF FIRST AID—This is a development of Medical Supply Co. and is now standard for all Medical Supply Co. units.

In explaining its move to cellophane-wrapped units, the company points out that it was adopted for two major purposes: One, to lower costs for unit system users, and, two, to give greater service in the field. This is accomplished in the following manner, according to the company.

With cellophane wrapping, infrequently used units will not have to be replaced because of the unit carton (not contents) wearing out. Disappearance of items from a multiple unit can always be detected, so that a man in the field does not suddenly find an item missing just when he needs it. Inspection time is cut substantially, since it is not necessary to open every unit package to determine contents.

Every unit gets continuous protection because units in the kit are protected against leakage due to partially used and improperly sealed items, such as tubes, vials, bottles.

Along with the cellophane wrapping development, Medical Supply Co. also has introduced a new bronze and tan color scheme for its unit system first aid kits and units. Kits are finished with a new hard-finish bronze baked-on enamel that withstands scuffing, weather and abuse. This is the same hard, baked-on enamel as used by automotive equipment manufacturers.

Another important advantage of this new color scheme, reports the company, is its high visibility and readability on units and kits, which means extra legibility, quick and accurate reading of contents and use data. Request NP 244.

• • •

CHAIN SAW—A new chain saw—lighter in weight, faster cutting, and easier to handle—has been announced by Homelite Corp. The new 22-pound, 3.5 brake horsepower Homelite Model 17 chain saw enables one man to do all the cutting in less time and with less effort than ever before.

According to the manufacturer, one

WANTED

EIGHT
EXPERIENCED TELEPHONE PLANT ENGINEERS

FOR SERVICE IN UNITED STATES,
CANADA and ALASKA
HIGH PAY AND ALLOWANCE

APPLY

GUSTAV HIRSCH ORGANIZATION, INC.

1347 WEST FIFTH AVENUE COLUMBUS 12, OHIO

CALL KINGSWOOD 0611 COLLECT, DURING DAY
EVERGREEN 2957—7 to 11 P.M. NIGHT

For Your ENGINEERS

★ ★

THE ANALYSIS AND PRESENTATION OF ENGINEERING PROBLEMS
(In Two Volumes)

By HARRY C. WALKER, B.S., C.E., Ph.D.
Plant Training Supervisor, Southern Bell Telephone & Telegraph Co.

Volume I is a simple yet comprehensive treatment of the normal thought process applied to engineering problems. This volume also sets forth the principles of logical analysis in the light of emotional bias and other disruptive factors and explains how these may be applied, in writing, to engineering presentations.

Volume II is essentially an English handbook, written particularly for engineers. Using the decimal reference system, this book permits easy and rapid reference in the "language problems" of the engineer.

PRICE: $2.50 PER SET
SEPARATE VOLUMES: $1.50 EACH

ORDER FROM

TELEPHONY PUBLISHING CORP.
608 SOUTH DEARBORN STREET CHICAGO 5, ILL.

Note: We also distribute Dr. Walker's other books:
ORAL EXPRESSION IN SUPERVISION
THE FUNCTIONAL ELEMENT IN SUPERVISION
THE HUMAN ELEMENT IN SUPERVISION
OFF JOB TRAINING

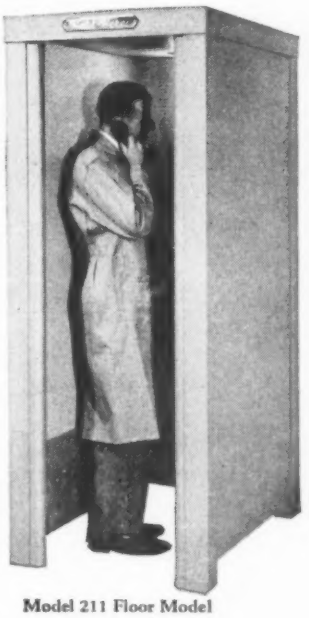
HOW YOU CAN *hear better* TO TELEPHONE

Loudness of Noise Reduced 50%* Inside a

BURGESS-MANNING
Acousti-Booth

- Thick walls of sound absorbing material, patented design, and craftsmanlike construction reduce the loudness of noise by 50%*... leaving a zone of quiet for ease of telephoning.
- Doorless construction makes for a light, airy, well ventilated booth ... easy to keep clean ... low maintenance.
- Easy to move ... Suited to any noisy location ... Wall and floor models ... Handsome in appearance.

Write for Bulletin A-124



Model 211 Floor Model

** Based on studies by a prominent research organization.*

BURGESS-MANNING COMPANY
Architectural Products Division
5970-P Northwest Highway, Chicago 31, Illinois

ENDURPRENE

• DROP • BRIDLE

A COMBINATION HARD TO BEAT FOR LONG-RUN ECONOMY AND RELIABILITY

— PREMIUM GRADE INSULATION —
— TOUGH, ENDURING NEOPRENE JACKET

DISTRIBUTED BY KELLOGG SWITCHBOARD AND SUPPLY COMPANY

MANUFACTURED BY
GENERAL INSULATED WIRE WORKS, INC. PROVIDENCE, R. I.

man with a Homelite Model 17 chain saw can do as much work in an hour as two men, with a hand saw, in a day. The Model 17 slices through an 18-inch tree in as little as 18 seconds, it is said.

Features, according to the company, include: automatic clutch, all-angle diaphragm carburetion, positive chain lubrication, quick starting, weather-proof ignition, rugged and simple design. Straight blades are available in sizes from 15 inch to 36 inch; plunge-cut bow saw attachments, for one or two-man operation, are available in 14 inch and 18 inch sizes. Request NP 245.

• • •

HAMMER NAIL CLIP—The "Third Hand" nail clip is now being made and distributed by the Utica Drop Forge & Tool Corp. "*Third Hand*" is attachable to most carpenter's hammers — its spring-steel clip holding all nails from shingle nails to spikes.

Easy to attach. Simply slip over head of hammer
Push ears through slots — pull tight — then bend ears and flatten
Frees one hand to hold material

Use of the Utica "*Third Hand*" greatly simplifies starting nails, as the material can be held in position with one hand while the nail is started with the other hand. When the nail is started, a slight pull frees the hammer which then completes driving the nail in the usual manner. The "*Third Hand*" also gives extra reach when starting nails, often saving the use of stepladder or scaffolding. The manufacturers state it never gets in the way as it fits very closely against the hammer head. Request NP 246.

• • •

SEALING TAPE—A new sealing tape featuring a high-tack, one-side adhesive without a separator backing of any kind, has been announced by Products Research Co. Even though the adhesive is exceptionally "sticky," it does not adhere to the felt, itself, the company states.

The elimination of backing material tackiness, is achieved as the result of a special new felt treating process. This process, while retaining the appearance of soft, raw felt, also provides increased tensile strength, abrasion resistance, and moisture and fungus resistant qualities, it is said.

The material, known as the Kling Felt "300" series, is available with a choice of two adhesives: (1) No. 302—Pressure Sensitive and (2) No. 313—Solvent Activated. (This latter adhesive is especially recommended for applications on cold or damp metal or where a strong diagonal pressure might have a tendency to "slide" the tape.) Request NP 247.

BACK FILLER—Announcement of a one-man-operated, fast moving, big-capacity backfiller for heavy construction work has been made by The Cleveland Trencher Co.

The new machine, the Cleveland Model 190, is a fast, highly efficient

backfiller under all types of project conditions; it is especially effective under the more rugged and difficult conditions—in mud, sand and rocky soil, in swamps and hilly terrain, the company states. Employing a big 7-foot backfill board, the machine backfills as it travels, providing continuous operation under one-man control.

The 190 utilizes the same basic design pioneered by The Cleveland Trencher Co. in smaller sizes prior to World War II.

Long, wide crawlers give the 190 an extremely low ground bearing pressure —6.2 pounds per square inch—an advantage which can be capitalized upon to the maximum because of the backfiller's perfect balance. The modern crawler unit has double-rimmed sprockets, wheels and rollers — anti-friction bearing mounted—eliminating track packing and effecting greater stability. Over-all width of the new machine is 8 feet, not including the boom. Fifteen feet in length and 9 feet 10 inches in height, it weighs approximately 22,500 pounds.

The 190's transmission provides 48 crawler speeds from 1 foot per minute to 4.3 miles per hour in either direction. It is powered by a 467 cubic inch Diesel engine which develops 79 hp at 1,400 rpm.

Hydraulic-actuated clutches with vacuum boosters give the operator complete control of the big smooth-casting scraper board.

Four separate transmission-controlled line speeds are available for both the pull-in and throw-out cables, ranging from 47 feet to 450 feet per minute.

it's dated

YOU CAN PROVE IT TO YOURSELF!

ALPHADUCT DUMBBELL TYPE
NEOPRENE JACKETED DROP WIRE

LASTS LONGER • COSTS LESS!

Every coil of ALPHADUCT drop wire is dated by means of a color coded thread which indicates the year it was manufactured. In this way, with no record keeping, no muss, fuss or bother, you can tell how long Alphaduct stays up without requiring service or replacement.

We know that our dumbbell type neoprene jacketed drop wire will last. It's tested thoroughly through every manufacturing stage. The tough neoprene jacket resists abrasion, moisture, sunlight, oil, water. The insulation sticks tightly to the conductor. The dumbbell or figure eight shape makes the wire easy to split, makes a neat installation.

You, too, may know all this for sure by trying Alphaduct drop wire. And . . . by dating the wire we make it easy for you to prove to yourself that this is the most sensible drop wire investment you've ever made.

IT'S DATED • FOR YOUR CONVENIENCE AND PROTECTION

ALPHADUCT WIRE AND CABLE COMPANY
MILLTOWN, NEW JERSEY

NATIONAL DISTRIBUTORS — LEICH SALES CORPORATION — CHICAGO, ILL.
REGIONAL DISTRIBUTORS — LINDSAY SUPPLY COMPANY, CLEVELAND, OHIO
PANKEY SUPPLY COMPANY, CHARLOTTSVILLE, VA.

WILKINSON LINE LOCATOR

Predetermines exact position and depths of pipes, cables, drains, etc.

Real insurance against delay and damage
Designed for precision locating
Hundreds of Satisfied users in the telephone industry
You will be satisfied too

WILKINSON PRODUCTS CO.

Originators of small, light all-purpose locators

Write for Complete Information

3987 Chevy Chase Drive
Pasadena 3, Calif.

The well-balanced 1,000-pound board bites deep into the toughest spoil bank. Both boom hoist and tow winch are hydraulically operated.

The adjustable boom can be telescoped from 19 feet to 27 feet. It can be easily removed for 8 foot hauling width. As a side crane the 190 has a 50,000 foot pound capacity figured from the edge of the crawler—10,000 pounds 5 feet out, 5,000 pounds 10 feet out. Its spring-cushioned winch drum hand brake provides steady control for crane work. Request NP 248.

• • •

AUGER PILOT BIT—The Pengo Jr. cone Pilot, a cone shaped fishtail bit for use on all makes and sizes of post hole augers has been announced by Petersen Engineering Co. It is claimed that the fishtail points prevent pivoting on rock when rock is encountered, and

the narrow fishtails will not "walk," but will penetrate hard surfaces such as hardpan. It has spiral positioned moldboards to "screw" their way into the earth, and their forward shape makes them self-sharpening.

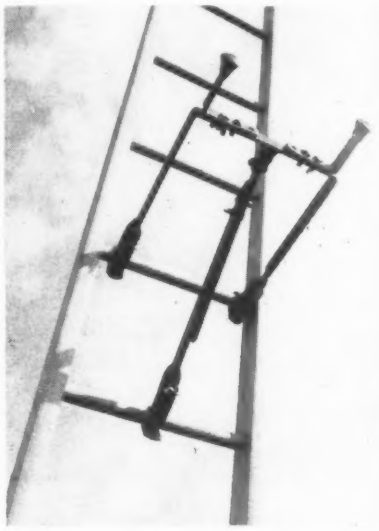
The new cone pilot bit is held onto a drive lug by a small bolt. The drive-lug is available in two types; the type that is threaded for screwing into the Danuser auger, and the weld type that welds to any make of auger, and is never replaced. When worn out the pilot bit is dropped off either type of drivelug and replaced using the same bolt. Request NP 249.

• • •

LADDER JACK—A new, "all-purpose" ladder jack, incorporating many new and important safety features and designed to perform virtually every holding and supporting function necessary for all types of ladder work, has been developed and marketed by the Allbee & Dunn Metal Products Co.

This new ladder jack, known as the "Armstrong" is adjustable to use by width or length from the center, or back and forth on the legs. With the "Armstrong," ladders can be secured with safety on poles and trees of all sizes and dimensions, on corners of buildings, on flat walls and by using two "Armstrong" ladder jacks, you have a solid platform base for scaffolding work of all kinds.

The "Armstrong," which is constructed of steel, ¼ inch x 1¼ inches in width, is particularly adapted for use by telephone and light companies,



maintenance and repairmen and electricians. It is painted a high visibility yellow and safety tips of rubber are used on the legs as a further precaution against slippage.

"Armstrong" ladder jacks can also be custom-made for individual requirements. Request NP 250.

• • •

PLASTIC SIGNS—Stock signs particularly suited to the telephone industry were recently announced by Gladwin Plastics, Inc.

These signs are made of plastic and aluminum materials. The wording on these signs cover all types of identification, such as:

Out of Town Directors
Telephone Building
Pay Telephone Bills Here

Also available is a file folder No.

CYRUS G. HILL
ENGINEERS
PLANT — TRAFFIC — COMMERCIAL
VALUATIONS AND ORIGINAL COST
134 S. LA SALLE STREET, CHICAGO 3

SLOAN, COOK & LOWE
CONSULTING ENGINEERS
Appraisals—Original Cost Studies
Plant, Traffic and Commercial Engineering
120 S. La Salle St.
Chicago 3, Ill.
Tel.: FRanklin 2-5924

Write Today for Your Copy

Bashlin's new bulletin giving full details on Linemen's Safety Equipment is ready for you . . a complete line from which to chose, and every one a champion. Write today!

W. M. BASHLIN CO. Grove City 3, Pa.

Installation Specialists
CENTRAL OFFICES
INSTALLED—MODIFIED—ENLARGED
COMMUNI-CATERING
P.O. BOX 6712 CHICAGO 7, ILL.

UNDERGROUND CONSTRUCTION
Cable and Wire Plow
Trenching Machines
Fully Equipped for Complete Installation
BJORNSON CONSTRUCTION CO.
Bode, Iowa Phone 2553

ROBERT E. FOLEY CONSTRUCTION CORP.
DESIGN—SURVEYS—APPRAISALS—Construction and Maintenance of Overhead and Underground Telephone Plant. Complete supply of poles available for emergency requirements.
48 GRISWOLD STREET
BINGHAMTON, N. Y. TEL. 2-7215

Construction Crews Station Installers
Central Office Installations
Cable Splicers Complete Engineering
HENKELS & McCOY
1418 Baldwin Bldg. Erie, Pa.
Now Operating in 18 States

NEALE CONSTRUCTION CO.
ENGINEERING • CONSTRUCTION • MAINTENANCE
TOPEKA, KANSAS PHONE 4-2621

TELEPHONE CONSTRUCTION, INC.
Consulting, Engineering, Installation,
Good Machinery, Competent Workmen
Pole Digging and Cable Splicing
Complete contracting service available.
C. H. DAUBENDIEK
Secretary
Box 267. Telephone 012. JEFFERSON, IOWA

WE BUILD AND REPAIR TELEPHONE PLANTS FROM CENTRAL OFFICE TO SUBSCRIBER
CABLE SPLICING & REPAIRING
WILTON ELECT. & TELEPHONE CONSTRUCTION CO.
ANDY MUELLER, Engineer
Telephone 21 Wilton Junction, Iowa

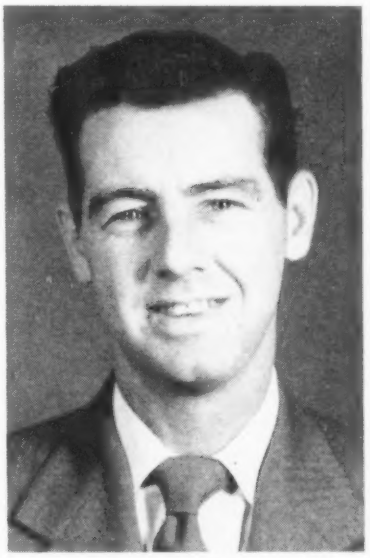
TELEPHONE CONSTRUCTION
Aerial Cable and Rural Plant, Station Installation — Cable Splicing
Serving the West and Northwest States
GARLAND CONSTRUCTION COMPANY
GARLAND R. ANGLETON
4571 Royal Ave. Phone 5-6100 Eugene, Oregon

5200 containing helpful information and suggestions on identifying outdoor and indoor telephone booths. Request NP 251.

• • •

T. M. Carroll Replaces Shear As AE's Iowa Representative

L. H. Warner, president of Automatic Electric Sales Corp., Chicago, recently announced the appointment of T. M. Carroll as the company's representative in Iowa. Mr. Carroll replaces Clyde Shear, who, after many years in that post, is now retiring for reasons of health.



T. M. CARROLL

Mr. Carroll was born in Clinton, Ind., and was educated at the University of Illinois. He served in the Army during World War II for three years.

His experience with Automatic Electric includes more than three years in the company's installation, engineering and supply departments.

He was to have assumed his new post shortly after the announcement.

V V

Managerial Changes Made By Koppers Division

J. W. Sullivan has been named Colorado district manager for the wood preserving division of Koppers Co., Inc., according to an announcement by Walter P. Arnold, vice president and general manager of the division.

Mr. Sullivan, whose new responsibilities include plant operation, sales, and procurement, succeeds R. C. Johnson, who was named the company's special representative working out of the Colorado district office in Denver.

H. O. Brown has been appointed area sales manager of the Houston, Tex. office to replace Mr. Sullivan, who has been with the Houston office since he joined the company in 1935.

STRENGTH, ENDURANCE that Meet the Test!

Crapo GALVANIZED Guy and Messenger Strand

IN THE FIELD as in laboratory tests . . . *Crapo* Galvanized Steel Strand proves itself capable of withstanding severe punishment. Steel's inherent strength and durability are combined with definite economies in every size and grade of *Crapo* Steel Strand. You'll find the heavy, ductile, tightly-bonded zinc coatings, applied by the famous *Crapo* Galvanizing Process, provide lasting protection against corrosion.

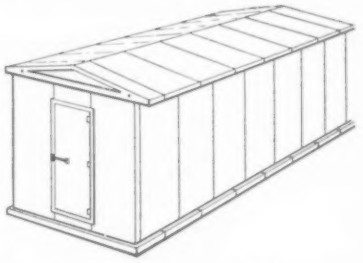
Contact your jobber of *Crapo* Galvanized Products or write direct for further information!

INDIANA
STEEL & WIRE COMPANY
MUNCIE, INDIANA

PERMACRETE
Sectional Concrete
BUILDINGS

• Radio • Microwave • Telephone
• Signals • Storage

2 ft. wide module Roofs, Floors, Walls



6 ft., 8 ft., 12 ft., wide Buildings — Lengths in increments of 2 ft. for maintenance free structures for equipment or personnel shelters. Weatherproof and fireproof — shipped knocked down for easy field assembly.

Write for Bulletin CH

PERMACRETE PRODUCTS CORPORATION
COLUMBUS 7, OHIO

Booths Foundations Crossing Slabs

CLASSIFIED SECTION

Rates 15 cents per word payable in advance. Minimum charge $3.00 for 20 words or less. Classified advertisements must reach us 8 days before publication date.

FOR SALE

ANKOSEAL CABLE
For immediate delivery
11 pair 22 gauge
26 pair 22 gauge

* * *

GALVANIZED LINE WIRE
12-85 HTL—
to 1499 lbs....$14.45 Cwt.
1500 to 3999 lbs.... 13.18 Cwt.
4000 and over ..... 12.97 Cwt.

* * *

W-D-1A TELEPHONE FIELD WIRE
Latest style Signal Corps, Thermoplastic jacket, 2-conductor twisted pair (4 copper, 3 steel). Readily spliced with 3-045B Compression Sleeves. Per Mile.....$20.00

TELEPHONE REPAIR & SUPPLY COMPANY
1760 Lunt Avenue Chicago 26, Ill.

10,000 pounds, 104 (10 B&S) Copper Toll Line Wire. Good condition. Approximately half mile coils at 33 cents pound (worth 25c for junk). Write Box No. 3451, c/o TELEPHONY.

WESTERN ELECTRIC Offset base desk stands with dials and metal ringer boxes enclosed gongs—like new $5.00. Write Mille Lacs Telephone Co., Onamia, Minn.

FOR SALE

PRIVATELY OWNED UTILITY COMPANY, 232 Electric and 171 Water customers, purchased power, spring and artesian water, serving island summer resort in R. I. $10,000 down, with longterm mortgage to responsible buyer. Ill health in family is reason for selling. Write Box No. 3449, c/o TELEPHONY.

POLE TRAILER, 2½ ton, American Coach and Body Co. Model #3873. 9.00 x 20 10-ply tires, 18 ft. sliding tongue. Less the four bolsters. Good condition. Price $300. The Lincoln Telephone and Telegraph Co., Supervisor of Supplies, P.O. Box #633, Lincoln, Neb.

ONE OZALID MODEL F WHITE-PRINT MACHINE complete with lot of assorted white print paper, ammonia and Installation Operation and Maintenance Manual. Accommodates materials up to 42 inches wide. Good condition. Price $390. United Telephone Company of Iowa, Newton, Ia.

TELEPHONE COMPANY WASHINGTON STATE—600 stations dial and magneto. Write Box No. 3452, c/o TELEPHONY.

TWO POSITION COMMON BATTERY UNIVERSAL KELLOGG SWITCHBOARD. Excellent condition, six years old. Ready for immediate shipment. Gem State Telephone Co., Cascade, Idaho.

FOR SALE

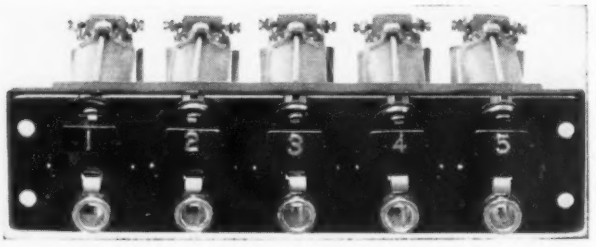
TELEPHONE COMPANY IN BEST FARMING SECTION OF WEST TENNESSEE CITY with population over 700 and factory working 160. Have 174 telephones and all telephone property in good condition. Home and office in brick building. See or write D. B. Neal, Trimble Telephone Co., Trimble, Tenn.

NORTH ELECTRIC ALL RELAY DIAL SWITCHBOARD complete with 300 lines, 27 links, 7 trunks, ringing equipment, batteries, chargers, main frame and protectors. Now in operation and serving over 1,000 stations. Will sell for less than half replacement cost. Write Mebane Home Telephone Co., Mebane, N. C.

STROMBERG-CARLSON 121 CORDLESS P.B.X. SWITCHBOARD equipped 16 lines three trunks wired 16 lines five trunks. Fifteen 10-pin Crossarms 30 inch center spacing. Sub-cycle Ring Machine Model M7.5 20 cycle straight line ringing. Write Indianola Telephone Co., Indianola, Nebr.

SIX POSITIONS OF STROMBERG-CARLSON SUPER-SERVICE SWITCHBOARD equipped with 860 common battery lines, 60 ring-down lines, automatic semi-selective ringing. Also complete main frame and power equipment. Available about August 1, 1954. The Columbia Telephone Co., Columbia, Pa.

COMBINED JACKS & SIGNALS



Western Electric #22-C type on #89-B Mounting (5 per strip) *BRAND NEW*

•

BUCKEYE TELEPHONE & SUPPLY CO.
1250 KINNEAR ROAD COLUMBUS 21, OHIO
Kingswood 0655

FOR SALE

GN38 GENERATOR
Used on Switchboard BD70
BD71
BD72
Also used on FIELD Phones EE8
1000 BRAND NEW at $4.00 EA.

TALLEN CO., INC.
159 Carlton Ave. Brooklyn 5, N. Y.

NEW

Signal Corps PL47 PLUG. Similar to W.E. #47, each.....$ 1.00
per doz. $10.00
per 100 .....$75.00
JK24 JACKS for above plug. 2-conductor with 1 break spring.
each .....$ .50
per doz. .....$ 5.40
per 100 .....$40.00

TELEPHONE REPAIR & SUPPLY COMPANY
1760 Lunt Avenue Chicago 26, Ill.